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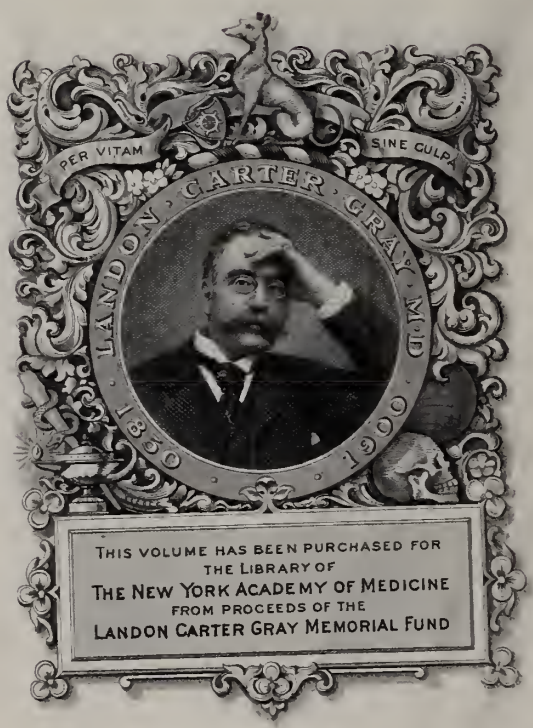
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Original Communications.

THE ROENTGEN RAYS IN THE TREATMENT OF MENSTRUAL DISORDERS.*

By JAMES W. HUNTER, Jr., M. A., M. D., Norfolk, Virginia.

In the early days of our work as roentgenologists we were limited in our scope of therapy to the skin and to certain structures immediately underlying it. We realized that, in order to achieve any results, a certain amount of erythema must be produced and, further, that there was so much absorption of the rays by the skin that a destructive dermatitis would arise before a sufficient dosage could be given to the deeper structures. With this in view, [1]Williams in 1905 proposed a sort of teleroentgenotherapy, thinking thereby to obviate the tremendous difference in the absorptive index. But the increased distance necessarily prolongs the treatment to such a degree as to render it rather impracticable. A little earlier [2]Pfahler had proposed the use of the leather filter; but the fact remained that, although larger doses of the rays could be applied without the production of an erythma, the increased amount of tissue to be penetrated, produced a corresponding amount of absorbtion.

It may be said, however, that [3]Pfahler was the first in this country to suggest the use of the filter. He devised a holder and experimented extensively with various substances. He found that silver emitted the soft rays while leather absorbed them. This, naturally, suggested itself, as it was the nearest medium to be obtained resembling the human skin; and, be it said, that even to this day leather is extensively used. A little later aluminum was suggested as a filter and still later the use of the cross fire method. This offered a means of deep roentgen therapy and was immediately adopted in the treatment of the internal lesions.

If we add that it had already been observed that the Roentgen rays have a selective action upon glandular tissue, smooth muscle tissue and the [1]organs of reproduction, it can be readily seen why the gynæcologist turned his attention to the new therapy. The roentgenologist at once became the rival of the surgeon. They discussed the proper methods of treating fibroids, carcinoma of the vulva, uterus, etc. It is only lately that both have recognized their dependence upon each other. The gynæcologist has found that he is not an expert roentgen therapeutist, while the roentgenologist must confess, truly and without shame, that he knows little of gynæcology save from what he learned in college and in his hospital internship. It has become a matter entirely of team work. We are mutually dependent and it is upon such mutual support that the best results can be and are attained.

In the treatment of menstrual disorders it becomes our duty first to ask ourselves to what class of cases is the roentgen treatment applicable. This must be found by a collaboration and a review of our work. Much good can often be done young adults, but it is not easy to cure them. Thus we have the recent case of Mrs. C. referred by Dr. N. G. Wilson.

Mrs. C., aged 24, married at 14, 3 children. Partial oöphorectomy one year ago. Has had considerable menstrual difficulties with profuse bleeding and, in spite of a thorough curettage at the hands of one of our best surgeons, is but little improved. She was treated abdominally on March 18th, 1919, and two weeks later the rays were applied over her back; but she has failed to return for further treatment, although she has had no skin or other complications. Dr. Wilson tells me that she is now somewhat better, though she still suffers at the menstrual periods, which are prolonged over several days, with an excessive flow.

*Read at the Fiftieth Annual Meeting of the Medical Society of Virginia in Richmond, October 28-31. 1919.

1. Trans. Amer. Roentgen Ray Society, 1905.
2. Philadelphia Medical Journal, Feb. 14, 1903.
3. Archives of Physiological Therapy, Nov., 1905. American Quarterly of Roentgenology 1906-7. 57. 72.

1. Alberts-Schonberg, Muchener Med. Wschchr., 1903, 1859. Brown and Osgood, Archives of the Roentgen-Ray, 1904-5, 213.

It is quite probable that no permanent relief could have been obtained in Mrs. C.'s case; but, even then, does it not seem better to give the Roengen-rays or radium a thorough trial, than to revert to the other alternative of unsexing a woman scarcely out of her teens?

Again, a cause of dysmenorrhœa, other than due to a diseased endometrium, must often be sought. Manifestly, the Roentgen-rays cannot be expected to help a trouble caused by a displaced or flexed uterus. In the case of Miss B., aged 38, referred by Dr. Charles R. Grandy on January 12th, 1916, with a history of excessive flow and no relief from a curettage, no relief was had from a treatment by the Roentgen-rays, although it may be said that the patient became so ill that she could not return for further treatment. Miss B. called again in June, 1919, and, while she informed me that she was now well and that no relief had been obtained from my treatment, she was good enough to say that a pedunculated fibroid had been removed subsequent to her visit and that this had been entirely overlooked by the first surgeon.

There is also a class of neurasthenics, which seem to baffle the skill both of the gynæcologist and the roentgenologist. It is a class of women in the early thirties. They seem to suffer with some endometrial involvement and are relieved but slightly either by the surgeon or roentgenologist. They are anæmic, they emphasize the amount of blood lost and, in spite of warning, they continue marital relations. Of these I have treated one.

Mrs. W. referred by Dr. F. S. Hope. Thirty-two, one child. Complains of excessive and continuous menstruation, has had recent curettage, but no relief, quite anæmic and neurotic. First seen November 13, 1916, and treated through the abdomen; two weeks later through the back. Again treated January 12th, January 31st, February 12th, February 26th, August 27th and September 3rd, 1917. Some cessation of the excessive bleeding and an interval of relief as long as three months. The excessive lose of blood was, however, checked, the patient gained in weight, and was much benefited, though a permanent menopause was not produced.

To these conditions of early age, displacement and flexion of the uterus, submucous and pedunculated fibroids and essential neurasthenics, it is well to add that menstrual conditions arising from specific cervicitis or endometritis or carcinoma must not be treated by the roentgen-rays alone. In the case of early age, we must admit that a radical removal of the uterus or ovaries is a thing almost criminal and only to be suggested or contemplated as a last resort and that the skillful use of the Roentgen-rays may tide the patient over and allow her to recuperate. The various flexures and displacements must be first overcome by physiological operative procedures. Specific disease of the uterus or cervix is to be treated as that involving other parts of the body; and carcinoma, only by the most thorough and radical operative procedures, supplemented by the liberal use of the Roentgen-rays or radium.

This then brings us to the crux of our discussion. In their own sphere the Roentgen-rays are almost all powerful. The cases most applicable are those whose trouble is confined almost entirely to the endometrium and muscle tissues and who have passed beyond 35 years.

Case 4. Referred by Dr. Lomax Gwathmey. Mrs. L., aged 37, 4 children. Complains of excessive flow, especially at menstrual periods, curetted but with no relief. Seen April 29th, 1915, and treated over the abdomen and through the perineum. Considerable difficulty at next menstrual period and then no menstruation for twelve months. Since then menstruations have been regular and the patient continues well.

Case 5. Referred by Dr. Kirkland Ruffin, Mrs. B., 34, widow, 2 children, saleswoman in bakery. Flowing twelve years; no relief in spite of curettage and other treatment. Considerable headache, etc. First seen January 24, 1916, and treated over abdomen. Two weeks later treated through the back. Considerable flow and quite ill at the next menstrual period. Complete suppression of menstruation for twelve months. In January, 1917, return of former symptoms much aggravated. Again treated through abdomen, February, 1917. As before hypermenstruation and illness at next period. Since that time menstruations have ceased and patient remains well, though she still suffers from headaches.

Case 6. Referred by Drs. Lomax Gwathmey and Charles Parrish. Mrs. X, aged 45, one child, Cæsarean. Suffers intense pain at

menstrual periods, especially in back. In spite of her age, however, there had been no signs of a beginning menopause. Seen by me on March 5, 1917, and treated through the abdomen. Three weeks later treated through the back. Menopause ensued with all of the usual symptoms of flushes, suppression of flow, etc. Six months later Mrs. X called at my office to say that she was completely relieved.

I have reported these cases at some length, as they are quite typical of what may be expected under the new treatment and because I have been able to follow them. In cases like those of Mrs. B and Mrs. R, aged about 38, suffering from excessive flowing at the menstrual periods, in spite of curettage, both were promptly relieved of their symptoms, but, as I have been unable to follow them, I shall make no comment, though I gathered from each of them about six months after their visits to my office, that they remained well.

Some constitutional symptoms, other than those connected with the difficulties of menstruation, may be expected as the result of the new treatment. We may look for an autointoxication with malaise and even vomiting. [1]Lange and [2]Jones considered this as the direct result of an effect upon the deeper tissues. Lange thought it a possible acidosis and suggested the administration of soda and alkaline drinks (e. g. Vichy) as a remedy. [3]Pfahler, on the other hand, has steadily maintained that this is the result of an ozonization of the air by the electrical currents and has sought to see that the patient breathes nothing but fresh air. In my own work I have tried to combine the teachings of both. I have tried to have the roentgen room well ventilated through open windows and fans and at the same time have administered soda and Vichy. But the results from the drug treatment have been so disappointing that I have ceased to employ the soda and Vichy and have merely insisted that the patient remain in bed for a day or two in a room fully ventilated on a diet restricted to food plain and moderate in quantity.

Some effect may also be expected on the skin as the result of the roentgen irradiation. In spite of the precautionary filter, which we shall presently mention, some tanning may be expected. Following the advice of Dodd, I have used his lotion. This consists of Ac. carbol, m xxx; oxide of zinc, ℥ss; glycerin, f℥j; and Aq. calcis to f℥viij, and is applied to the irradiated area three times a day for two weeks. At the same time the patient is warned that she must not get too near a fire, that no stupes, water bottles or other hot applications shall be used and the hot vaginal douche is strictly forbidden. For, if these are used, or persisted in, we may expect a result destructive in the extreme. Roentgen irradiation, like the surgeon's knife, will be followed by scarring and, if the patient refuses to heed the summons, results may ensue, of which we are innocent, but of which the patient's friends shall promptly know.

Although a technique individual in almost every case has been built up by the various roentgen therapeutists, that proposed originally by [1]Gauss and Krönig, or some modification thereof, is the one usually employed. Upon the assumption that six areas, each receiving an erythema dose of the Roentgen-rays, must be used in order to give a single erythema dose at three inches below the skin, it would seem to follow that the areas treated should be in the form of hexagons. But we have also found that the use of the aluminum filter will absorb the lower or burning rays of the roentgen spectrum and that the filtered rays will have a markedly less effect upon the skin, at the same time giving us the desired therapeutic result beneath the skin. It has been found by experience that with sufficient filtration three times the usual erythema dose may be safely administered. To be conservative, however, we try to give two erythema doses. Thus the abdomen, being divided into squares, each receiving a double erythema dose, allows each subcutaneous point to receive an amount of irradiation at three inches equivalent to one and a third erythema doses, an amount well calculated to produce a result.

The whole problem, therefore, resolves itself into a question of division into squares, filtration, dosage and time. In my own work I have tried to divide the space between the symphysis and umbilicus into three portions.

1. Journal of the American Med. Assn. 1913, lxl, 556.
2. American Journal of Roentgenology, 1918, v. p. 32.
3. American Journal of Roentgenology, 1918, v. p. 5.

1. Gauss and Kronig: Munchener Medizinische Wochenschrift, 57, p. 1529.
Holding: American Journal of Roentgenology, vol. 1, p. 59.

This gives me the side of the square that I shall employ. Three of these areas are, therefore, assigned to either side of the line joining the symphysis to the umbilicus, care being taken that they do not overlap and that there be a small space between them. On either side of the two upper squares, two other squares are also irradiated, so that in all the uterus receives during its entire length six portals of entry and each ovary four. Two weeks later the back below the waist is divided into four parts (the lines of division running at right angles), each part receiving, as before, a double erythema dose. Thus within two weeks the uterus has received the result of ten irradiation and each ovary six. Some operators also direct the rays upward through the perineum, but in my own opinion and experience the usual technique is quite sufficient.

The question of filtration may now be discussed. It has been found from experience that a minimum of three millimeters of aluminum is desirable, although most of the earlier workers employed less. In addition it is well to employ a thin piece of leather (chamois is excellent) directly over the irradiated area. We shall at the same time protect the other skin by the use of sheet rubber, which has been impregnated with lead, or by sheet lead itself. Of late there is a tendency to employ more filtration, so in my own cases I propose to employ a filtration of four millimeters of aluminum in addition to the chamois, which is laid directly on the irradiated area.

To obtain a ray satisfactory for the treatment of our cases, only the modern transformer and Coolidge tube may be considered. We shall use a tube backing up a spark of as nearly nine inches as possible, which, conservatively estimated in the great majority of machines, will actually run from eight and one-half to eight and three quarter inches. A spark greater than this is likely to injure the tube. Such a ray, filtered as described, can be safely applied in doses of a double erythema. Formerly we applied it for five minutes over each square, but lately we have found it better to lengthen somewhat the time of exposure, so that we now use it from five to seven minutes. We must also recollect that, to be efficient, we must apply the rays as near the skin as possible, so that a distance from target to skin of from seven to eight inches is that usually preferred.

The technique just described is that known as the intensive method. It has the advantage that it is constant in amount, easily administered and brings about the desired result in the quickest time. It may, of course, not all be given at the same time, only a few areas being treated on the same day. But, as the great majority of patients are made more or less ill by the procedure, it is best not to prolong the treatment over too great an interval. When convenient, it is probably best to extend the abdominal treatment over two days. Yet the great majority of my patients have received the whole abdominal treatment at one sitting. Two weeks later, as we have explained above. I irradiate the back. Then I wait two more weeks and, if necessary, I again irradiate the abdomen; and again the back, as before. It has been found that intervals of three weeks between treatments are generally safe, if no erythema has developed, but as an additional mark of safety, I feel that the suggested procedure is the best. This, combined with the use of Dodd's lotion and the prohibition of hot water or other irritants, furnishes all that we now consider best. Of course, accidents will happen and idiosyncrasies develop, but for this the roentgenologist and gynæcologist cannot be held responsible.

It will be readily seen that the treatment suggested above for menstrual disorders is essentially that employed in the treatment of uterine fibro-myomata, save that it is not continued over so long a period and that fewer squares are irradiated. Theoretically, it is open to the same objection, namely, that in causing a degeneration of the endometrium or smooth muscle fibres we are laying the foundation for future carcinomata. But I have yet to hear of an authentic carcinoma so produced; and we must conclude that, however sincere the objection has been made, it is one more academic than real. In my own cases, save for that of Mrs. W., I have never had occasion to administer more than two series of treatments. The patient can be accurately watched; the treatment may be supplemented or discontinued at any time. Even if we do not succeed, radical surgical methods can still be used. But in the hands of those who have used the

roentgen treatment, the results have been so happy that we feel that the experimental stage has long since passed and we cheerfully recommend it.

As we have hinted, few roentgenologists know aught of gynæcology. And, as we have also hinted, not all cases of dysmenorrhœa or menorrhagia can be cured or relieved by the Roentgen-rays. Our aim is to bring about a cessation of the flow, an artificial menopause, as it were. If the patient is young the best that can be expected will be a temporary cessation; but even then, we may tide her over and give her another chance. In case of older patients, a returning menstruation can be controlled by another series of treatment. In older women the menopause will be permanent. But let us insist upon a thorough gynæcological examination and differentiate those cases requiring surgical intervention from those likely to respond to the Roentgen-rays. It is only by such means that we can build up a team work. And it is by this alone that we shall succeed.

I wish to thank my many friends, both medical and surgical, for the work that they have sent me and for the implicit confidence which they have placed in my judgment. It has been team work of the highest quality and, though my experience in the roentgenological treatment of menstrual disorders has been limited to less than a dozen cases, the results have been so happy that I am more than pleased with the work. This is in most cases tedious. The number of areas to be irradiated, the extreme tension of both operator and patient, all have their little drawbacks. But "the end justifies the means" and I heartily and sincerely commend the roentgenological treatment of menstrual disorders to the earnest consideration of the profession.

THE TREATMENT OF MENORRHAGIA WITH RADIUM.*

By S. W. BUDD, M. D., Richmond, Va.

Although some of the original claims made for its usefulness had to be modified, radium is now regarded as a wonderful and dangerous drug. Kelly, Burnam, Clark and others are largely responsible for introducing it into gynecology and it is to the activity of these men that the principles underlying the application of radium have taken form. There still exists, however, in certain sections of the country, a difference of opinion as to the dosage and screening of radium in gynecological cases, but practically all gynecologists are in accord as to the nature of cases to be treated, and all agree that in menorrhagia most brilliant results are to be expected in radium therapy.

In the early days when radiologists were groping in the dark radium was applied only to women approaching the menopausal cycle, but in the past two or three years Clark, Stacy and others have shown us that radium can be employed in the treatment of young women with safety provided we limit the size and frequency of the dose. In this connection, however, lest we become overzealous in our efforts to relieve young women of menorrhagia we should listen to the timely warning of Clark when he says, "We are convinced that in the young women heedless radiation may be quite as unfortunate in the results as were the efforts of over-enthusiastic or poorly balanced ovariotomists. Radium is quite as potent in its power to bring on a premature menopause and it is quite as upsetting to the nervous equilibrium of a young woman as the removal of the ovaries."

The change produced by radiotherapy in the organs of menstruation depends upon the location of the application. If the radium is applied within the uterus, as it usually is, the endometrium suffers functionally and structurally. A discharge as from an inflamed surface often persists for weeks if the dose is unduly large. Few uteri have been examined after a therapeutic dose of radium, but in these the endometrium was normal, and it is not uncommon for a pregnancy to occur in women who have been radiated.

One of the chief effects of radium is the production of an obliterative endarteritis in the uterine vessels. It is to this fact that congestion which usually precedes menorrhagia and upon which the menorrhagia is dependent, is lessened.

Radio-activity has little or no effect on the uterine musculature; in fact, the uterus is the best physiological screen in the body and it undoubtedly protects the pelvic organs from in-

*Read at the Fiftieth Annual Meeting of the Medical Society of Virginia in Richmond, October 28-31, 1919.

jury when large doses are used in the treatment of carcinoma. It is interesting to note that while the smooth muscle fibers of the womb are not sensitive to rays, fibroid tumors which are made up of unstriped muscle fibers and fibro-elastic tissue are much affected by prolonged radiation and often disappear after one.

The ovaries are easily damaged by radio-activity. The rays seem to have a selective action for the graafian follicle. After a prolonged dose the cells in the stratum granulosum commence to show destructive changes, while the ova are somewhat more resistant but they too are destroyed by a large dose. Eight or ten days after a long radiation the entire structure of the graafian follicle is lost and the symptomatic results of such changes are much in evidence. According to Corscaden "this effect is one of the most striking of all those caused by the rays on any of the structures of the body."

The causes of menorrhagia are numerous and varied. Anatomical lesions within the uterus such as chronic metritis, endometritis, ulceration, laceration, prolapse, involution, faulty position are often associated with excessive bleeding. While extra-uterine conditions, such as high blood pressure, faulty circulation, a tendency to bleed due to a delay in the clotting time of blood as seen in blood disorders, syphilis, endocrine disturbances, inflammation of the adnexa may cause a moderate or a profound menorrhagia. The bleeding in a vast majority of instances is due to local anatomical lesions, but a few cases are induced by conditions quite remote from the pelvis, and especially is this true in the menorrhagia of young women.

Excessive menstrual flow may offer many barriers to successful treatment. Some cases do well on simple medical remedies, other cases are benefited by a D. and C., and still others resist all forms of therapeutic remedies no matter how well or skillfully directed. No condition can tax the ingenuity more or calls for more gynecological judgment than menorrhagia. All gynecologists have been confronted with the problem of patients returning with symptoms just as severe as when first seen, and after several local operations, have been forced to remove the womb in order to relieve the patient of her troublesome and dangerous symptoms, and themselves of the responsibility for her run-down and ex-sanguinated condition. In radium we have a remedy which in a large measure will obviate the difficulties associated with a successful termination of an intractable case of menorrhagia.

Fifty cases of menorrhœa not associated with carcinoma and large fibroids have been treated by us with radium. Some of the cases had to return for two or more radiations before they obtained the desired relief, but it has not been necessary to advise the removal of the womb in a single member of the group.

In regard to the treatment of menorrhagia with radium, Clark aptly sums up the situation when he says, "As we view this question, three essentials are capital in the use of radium; first, an accurate diagnosis in all cases; second, the proper selection of cases; third, the careful graduation of dosage, beginning when young women are being treated with a minimum application and increasing the duration of the application slightly if the first attempt fails to check the excessive flow."

Our technic for the application of radium differs little from that employed by Stacy, Clark and others. We do a simple D. and C. and swab the uterine cavity with iodine and apply the radium in a silver capsule screened with one mm. brass. In short radiations we do not screen with rubber, as Clark and others advise, for we do not believe that the secondary rays have the same destructive effects on the endometrium as they do on superficial epithelium. The amount of radiation depends largely on the age of the patient and the condition that is to be treated.

In young women under thirty-five years of age we seldom give more than 300 to 400 mg. hours in a single treatment. This is a small dose, but an application of twice as many mg. hours may bring about a sudden termination of menses—a condition not to be desired. We allow three months to elapse and if the menstrual flow has not returned to normal we advise a second application. The first period after radiation is often associated with menorrhagia, but the flow during the second period is usually not excessive, and at the third period a normal state is reached.

In women above thirty-five years of age we give a little larger dose and we seldom have

to give more than one treatment to bring about the desired effect. Where there is no fibroid and the menorrhagia results from a hypertrophic endometritis or a chronic metritis we usually give 500 to 700 mg. hours of radiation. In cases in which the larger doses are used it is not an infrequent occurrence for the patient to have several irregular periods and then have menstruation cease entirely.

We have not made a practice of advising radium in the treatment of fibroid tumors, but in treating patients for menorrhagia associated with fibroids we have seen fibroids entirely disappear. We have had two cases in the past six months for whom we advised radium for the excessive bleeding and, when they returned to have their womb removed for the fibroid, we found the tumor had entirely disappeared.

After a radiation the patient may suffer symptoms of intoxication such as nausea, a slight elevation in temperature, but the symptoms are not alarming and subside within twenty-four hours. After the menorrhagia ceases the patients soon regain their health and hemoglobin. I know of no condition where "come back" both mental and physical is quite so rapid.

Professional Building.

Discussion.

Dr. J. T. McKinney, Roanoke:—The papers of Drs. Hunter and Budd, on the treatment of menstrual disturbances and fibroids by the Roentgen rays and radium, have brought to our attention work which has been very much neglected in this section of the country. The application of either agent has now been thoroughly worked out and we know what results to expect and look for.

Due to the work of such men as Drs. William Clark and Pfahler, of Philadelphia, Remer and McKee, of New York, and Drs. Kelly and Burnam, of Baltimore, the experimental stage of the work has been passed.

We know that the effect of the Roentgen rays and radium as brought out by Dr. Spencer in his discussion and in the papers of Drs. Hunter and Budd, is practically the same. We feel that, with the close co-operation of the gynecologist and the proper selection of cases, we can get definite results. The cases reported by Dr. Hunter are types of cases that in the hands of trained men will respond to Roentgen ray treatment. Personally, I have had no actual experience with radium, but have followed a number of cases treated with it and have seen the good results.

I have used the Roentgen ray and want to endorse the work of Dr. Hunter. There are types of excessive bleeding that, after every possible cause has been looked for by the gynecologist and treatment instituted, will not respond to the usual routine of treatment. It is in this type of cases we are often able to get striking results. The treatment is painless and without danger in the hands of trained men.

Dr. H. B. Spencer, Lynchburg:—Unfortunately I came in a little too late to hear Dr. Hunter; however, I would like to say that I have seen practically no difference in the action one gets from the rays of the X-ray and those of radium. The results will be practically the same if applied according to the purpose for which it is being used and the one selected which is most adaptable to that individual case. Radium has the advantage over X-ray in the ease with which it can be introduced into cavities, such as the mouth, nose, vagina, uterus, etc., but, wherever our high tension currents will allow us to get close enough to the part being treated, you will accomplish the same results with the X-ray.

I think it would have been well if these papers could have been read before the joint session of the surgeons and medical men as the former are equally as interested in the results which are being obtained. In the case of fibroids we have seen large numbers cease bleeding and completely disappear under the action of radium or X-rays, or sometimes both. In the past year, I had the privilege of treating a fibroid case, the wife of a prominent surgeon in another state, and the fibroid disappeared promptly under the combined treatment of radium and X-rays. A well-known gynecologist sent another case in a member of his family for treatment by the X-rays. These cases are mentioned simply to show that the surgeons and gynecologists are sufficiently well pleased to send members of their own families for treatment by this method.

Dr. Julian L. Rawls, Norfolk:—I want to stress one thing in the use of radium in the pelvis with diseased conditions of the adnexa (incidentally the action of radium and X-ray is practically the same). It is simply a question of penetration; if you get the same amount of radiation you get the same action also. For instance, if you have a big stout woman as a patient, you get better results from radium inserted in the uterus as the X-ray has to come through all that added adipose tissue.

The point I wish to stress has been emphasized a great deal by Clark, of Philadelphia, that radium is likely to cause a flare up in diseased conditions of the tubes.

I want simply to cite one experience which I have had which emphisized that point to me. I had a patient in her forty-second year. She had been operated on here in Richmond some six years ago, at which time she had had an amputation of the cervix and an appendix operation. She had gotten up now an irritation of her cervix stump with some bleeding; a section of the cervix was removed and one pathologist reported that it was an early malignancy and the second pathologist that it was simply an inflammatory condition.

At the time the section was removed she was given twelve hundred mgm. hours of radium. She had the usual amount of nausea and vomiting which she attributed to the anesthetic and not to the radium. She left the hospital I think on the third day. I did not see her for probably a week after she went home. She was running a temperature and flowing excessively. This was not unusual, especially as it was at her menstrual period; then the flow checked up and finally disappeared entirely. She continued to run temperature for several days and a vaginal examination was made, when it was found that she had a well developed tubal inflammation. Her history was gone over more carefully and it developed that she had had an infection in her right

tube five years before. It had been quiescent for sometime and was not palpable at her pre-operative examination. This patient was not curetted; all that was done was to introduce the radium into the cervix, so that the operation was not responsible for the flare up in that tube.

Dr. Clark has laid a good deal of stress upon this and I do not think that Dr. Budd brought it out as clearly as he should.

Dr. Geo. C. Johnston, Pittsburgh, Pa., (invited guest) being called on for discussion, said: The treatment of the diseases of the uterus and the pelvic region is a problem of the gynecologist and anything that we are called upon to do by the gynecologist we are very glad to do.

I believe there is one thing that should be impressed upon all X-ray men and that is the fact that no man should ever employ radium or X-ray in the treatment of any gynecological condition unless he is absolutely sure of just what he is treating. He should have the opinion of a competent gynecologist as to what is needed. I do not think a great deal of the danger of treating carcinoma in mistake for fibroids. I believe that this bogey has been played up to the limit. If the patient's complaint is due to the mechanical pressure of the tumor, unless there is some very good reason or contraindication, the patient is better treated surgically. If, however, the complaint is due to the size of the tumor then a very great deal can be accomplished by the roentgenologist. If the case is to be treated by the induction of radium into the uterus, nobody but a competent gynecologist ought to insert anything within the uterine cavity. If he does, he takes a chance of getting into trouble. Consequently, the only thing to do is to be ready to fix up the radium properly, hand it to the gynecologist, let him put it where it ought to be and tell him when to take it out. That is the way if I had anything to do with it.

However, the treatment of these cases with the X-ray is a different proposition. Every once in a while some good gynecologist friend with a patient who has had hemorrhages, comes to the conclusion that she is no longer a surgical risk, that he does not care to insert anything in the uterine cavity. I remember one little woman whom they were keeping alive with intravenous injections of coagulose. That little woman was given in one day about fifty times as much radiant energy in the form of the X-ray as had previously been applied to any woman, but it was necessary to stop the hemorrhage at once. So we gave her treatment on one day, starting at nine in the morning and quitting at four in the afternoon, and then I did not know what would happen to her, and waited to see. I did not know what the effect would be on the bowel, bladder, etc. There wasn't any effect whatever on these things. All hemorrhage ceased and has never occurred since. She got married and came into the office one day to see if we could not do something to bring back her menses, with the hope of becoming pregnant. I told her I did not know of any emetic for the X-ray. I relate this instance simply to show what is possible by the application of radiant energy, no matter in what form. The effect will be in all cases the same. If sufficient quantity is given, the hemorrhage will cease, provided the hemorrhage is not from a malignant cervix. In these cases it seems that if the rays are applied to the region of the ovary it will invariably be followed by cessation of the hemorrhage, and so, if the dose is sufficiently large, the function of the ovaries will be totally destroyed. If the dose is considerably smaller, the function of the ovaries will return to a certain extent, but I doubt if such a patient would ever become pregnant.

I want to tell something I saw just before coming down. I had in my office in the same afternoon two young women who had been operated upon, one five years ago and the other six years ago by abdominal hysterectomy for malignancy of the uterus. One of the little women has nothing to show that she ever had any malignancy except the results of the X-ray she got at that time. The other one, having never had any X-ray, showed only a small palpable mass in the region formerly occupied by the left ovary. I want to tell you that is worth while. I want you surgeons to take heart. I want you to operate on every case of malignancy that is a surgical possibility without any consideration of the end results.

Dr. Hunter, in closing:—After a great deal of experience I am persuaded that there is no appreciable difference between X-ray and radium therapy, as the emanation is practically the same. Radium has the advantage, in that it can be placed in a cavity or buried in a lump of tissue, while the X-ray tube certainly can not. There is no reason why the two should not be combined. But, as Rodman remarked some years ago, radium remains for the elect and select few, while the X-ray can be given to any suitable case in any amount. Possibly in the treatment of the severe menstrual disorders or carcinoma of the uterus or adnexa, a combination is better than either one alone.

Pfahler was, as I said, the first in this country to make use of the filter. The use of aluminum seems to have been suggested by the French. The crossfire method, I think, originated at Freiberg, though I have been unable to find any mention in the literature.

I want to thank the doctors for their kind and friendly discussion of these papers.

Dr. Budd in closing:—I know of nothing I wish to add unless it be to emphasize the point that Dr. Rawls brought out in the discussion. In a pelvic inflammation of low grade there is always a distinct danger of converting it into an acute process by a large radiation. Where there is pain in the pelvis either to the right or left of the womb Clark (J. G.) cautions us about the use of radium. He has had several cases of pelvic flare up following the prolonged application of radium. Radium in small doses has a stimulation on ulcers and fistulae, but in large doses it depresses rather than stimulates the tissues. The uterus is probably the best physiological screen and it will protect the adnexa to a considerable extent in moderately large radiations. Otherwise, we would have more pelvic disturbances following a radiation.

I believe we are fairly safe when we advocate for menorrhagia 300 to 400 mgm. hours for young women and 400 to 700 mgm. hours for older women. In our last fifty cases we haven't had a pelvic flare up although some of our patients must have had a pelvic inflammatory condition. In the future, however, it is my intention to go slow in the treatment of menorrhagia with radium if a pelvic inflammatory condition co-exists. We are sterilizing a very small percentage of our women in the child-bearing period, and we attribute this to the small doses employed in the treatment of them. Our series is too small as yet to make our statistics of any value.

A CONSIDERATION OF SYMPTOMS AND SIGNS SUGGESTING THE POSSIBILITY OF SYPHILIS, OBSERVED IN ROUTINE EXAMINATIONS.*

By J. D. WILLIS, M. D., Roanoke, Va.

My reason for considering the tremendously important subject of syphilis under the above title is to bring more forcibly to the minds of examining physicians the ever-present possibility of syphilis in every patient he has for examination. In any diagnostic study it is of the greatest importance to either confirm or exclude this disease as a possible cause of a part or all of the patient's sufferings. This is true because of the fact that in syphilis we have a generalized infection of all tissues and fluids of the body. One can hardly think of any complaint encountered in chronic disease which can not be partly, or completely, explained by syphilitic infection, in case this disease is proven to be present. The fact must not be lost sight of that luetic individuals may be subjected to the sufferings and disability of any other malady which may attack the human body.

I would that all physicians might ever remember, and be conscious of, the following quotation from Sir William Osler: "Know syphilis in all of its manifestations and relations and all other things clinical will be added unto you." This quotation carries with it the meaning that to know syphilis and all of its manifestations it is necessary to know the other conditions which present similar symptoms to a syphilitic manifestation. This knowledge in regard to other conditions is gotten by excluding the syphilitic manifestation as being present. The Wassermann blood reaction, the spinal fluid Wassermann reaction, the cytological study of the spinal fluid, the globulin reaction in the cerebrospinal fluid, and Lang's colloidal gold curve, are tests which are most helpful in ruling out or confirming the probability of syphilitic infection as being the cause of the manifestation in any given case.

The blood Wassermann test is positive in about 80% of cases of acquired syphilis after the seventh week. In secondary syphilis, if the cases be untreated, this test gives from 90% to 100% positive reactions. In tertiary syphilis the patients who have not been treated react positively in about 95% of the cases. Patients who have been treated irregularly give about 75% of positive reactions. In general paresis the spinal fluid Wassermann, as well as the blood Wassermann, is positive in about 100% of cases. Tabes dorsalis, if previously untreated, gives from 96% to 100% positive Wassermann reactions in the blood; if previously treated, about 40% to 50%. Cerebrospinal fluid Wassermann, in this disease, is positive in about 60% of cases. In cerebrospinal syphilis the positive reactions both in the blood and spinal fluid are in about the same proportions as in general paresis.

The positive cerebrospinal fluid Wassermann is very frequently present in syphilis without evidence of cerebrospinal involvement. In latent syphilis the positive blood or spinal fluid Wassermann is often the only symptomatic evidence of the disease. It is very frequent to find a positive spinal fluid Wassermann with or without an increase in cytological count, and a negative blood Wassermann in syphilitic infection. This disease can not be considered to be absent when manifestations are present that might be attributable to it without finding a negative spinal fluid Wassermann, a normal cytology, an absent characteristic colloidal gold curve, and a negative blood Wassermann. It must be borne in mind that the tests just considered are to be viewed as symptoms of syphilitic infection when positive. It is undoubtedly true that some luetic infections will fail to give any of the known positive tests for syphilis. Fortunately, however, this is the case in a comparatively small percentage of those infected. It is considered, from the available evidence, that 15% of the white population of our country, and 30% of the colored population, are infected to some extent with syphilis. One-third of the inmates of our asylums are probably there as a result of syphilis. So, you can see, from an economic standpoint, as well as from a standpoint of relieving the suffering, it is very important to always bear this disease in mind as a possibility, regardless of the body tissues under consideration.

In order that we may be more appreciative of the symptoms and signs observed in the course of routine examinations which suggest

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the possibility of syphilis, we will now consider some complaints and disabilities that may be proven to be due to syphilis.

Headaches may be due to a variety of pathological states, they being the result of toxemia, intracranial pressure, localized or diffuse intracranial inflammation, inflammation of the nerve, or a reflex nerve manifestation. The headaches which are a result of syphilitic infection are usually of the frontal type and may be intermittent, irregular, or constant. I have seen cases, however, which suffered from occipital headaches alone. Absentmindedness, forgetfulness, a marked change in one's moral stamina or business judgment, or a radical change in disposition, in one who had previously been of good judgment and deportment, would strongly suggest the possibility of syphilis as being a cause for this change.

Sudden loss of hearing without pain and with tinnitus, in a young man, would suggest the almost certainty of syphilitic involvement of the eight nerve and labyrinth.

The following conditions of the eye are oftentimes the result of syphilis: ptosis of the upper eyelid, inequality of the pupils, paralysis of the extrinsic muscles, paralysis of accommodation, interstitial keratitis, iritis, chorioretinitis, and optic atrophy. Especially is this true of acute iritis and interstitial keratitis. Within the past week I have had confirmed by the Wassermann test the diagnosis of syphilis in a man of 35 which was suggested by a suddenly developing double image vision resulting from paralysis of the external rectus muscle of the right eye. In this case no history of a primary lesion could be gotten.

Conditions of the mouth, throat and larynx which may be due to syphilis are tumors, ulcerations, perforation of the soft palate, deviation of the tongue, Hutchinson's teeth, high arched palate, chronic laryngitis, and paralysis of one or both vocal cords. Perforation of the soft palate and paralysis of the vocal cords are extremely likely to be of luetic origin.

Perforation of the septum of the nose is very likely to be due to syphilis. Also tumor formations and ulcerations in the nose should be considered as possibly due to this disease. The saddleback nose deformity is especially suggestive of hereditary syphilis.

According to Thom, syphilis predisposes to malignancy, and it may exactly simulate cancer in any location (in the viscera or on the surface of the body). I have seen a case of primary chancre of the finger diagnosed on section as being an epithelioma. In this case a secondary syphilitic rash appeared just in time to save this young man from an amputation of the finger.

Chronic adenitis is so commonly associated with syphilitic infection that it is never consistent with conservative diagnosis to ever consider this condition as being due to other disease, unless the tests for syphilis are negative. Chronic ulcerations of the body, in any location, must be considered as possibly due to luetic disease. Chronic periosteal thickening is most likely due to syphilitic infection; and all bone tumors and bone destructive processes must also be considered as possibly due to this disease. Epilepsy may be the result of a syphilitic pachymeningitis or gumma formation.

Paresthesia may be due to a luetic nerve lesion. Acute or chronic articular rheumatism must be considered as possibly being a luetic manifestation. I know of one sufferer from syphilitic articular rheumatism who relieves himself whenever an attack develops by taking potassium iodide, and because of his great faith in this medicine as a remedy for rheumatism, he insists upon his friends who happen to complain of it taking this medicine. Any chronically enlarged joint may be considered as possibly a syphilitic joint; such are called Charcot joints, when due to this disease. Any muscular paralysis may be due to luetic disease. Certainly an apoplectic stroke, in a young person, is extremely likely to be the result of a syphilitic endarteritis. A syphilitic meningitis is not uncommon, and must be excluded or confirmed by a study of the spinal fluid, whenever meningitis is considered to be present. Sudden loss of hair may be an early luetic manifestation. Any disturbance of gait and also neuralgic pains, especially of the lower limbs, may be manifestations of this disease. Anal condylomata are almost sure to be luetic.

Chronic syphilides are frequently considered to be chronic eczema, and the usual topical applications are made for relief. Recently a widow lady, aged 40, came to consult me about a weeping eczema which had involved all of the fingers and back of her right hand continuously for seven years. She prefaced her remarks in telling me of her trouble by say-

ing, "You are the twentieth doctor I have consulted in regard to this hand." All previous treatment had been topical applications. The blood Wassermann, in this case, was strongly positive, and the eczema healed very promptly after arsphenamine administration.

Syphilis of the lungs presents similar symptoms to pulmonary tuberculosis, and should be confirmed or excluded as a cause of the symptoms in every suspected pulmonary tubercular case. Hemoptysis is quite frequent in pulmonary syphilis. I have a man, aged 35, under my care who, for a year prior to five years ago, was given sanatorium treatment. He had been a bed patient for nine months because of a persistent temperature rise, which often went to 101 in the afternoon. The physical examination, according to the specialist in charge, did not indicate sufficient lung involvement to account for the degree of fever present. After a strongly positive blood Wassermann was gotten on this man he was given arsphenamine treatment, with the result that all fever subsided after the second weekly dose. This man has been actively at work now for the past five years with no discoverable signs of pulmonary involvement.

We should never fail to look for symptoms referable to the cardiovascular system in a syphilitic patient. Aortitis is present in five to ten per cent of luetic cases. Symptoms which are suggestive of syphilis of the lungs, mediastinum, and aortitis,—but especially indicative of aortitis,—are substernal pain with slight fever, cough, hoarseness, dyspnea, palpitation, and gastric disorders. An X-ray study of the lungs, mediastinum, and heart, is very helpful in identifying the location of the luetic process. Recently a man of 45 was brought to me suffering intensely with dyspnea. The attacks were so bad that it was necessary for him to be propped up at night. He gave a four plus positive blood Wassermann, and a fluoroscopic X-ray study showed a definite mediastinal tumor. This tumor subsided promptly, and the patient's symptoms were relieved after arsphenamine administration.

The Treponema pallida has been found in the walls of the heart and blood vessels, and infection with this organism is very frequently the cause of angina pectoris. Myocarditis, as well as any of the valvular lesions of the heart, may be a result of syphilis. It is especially suggestive of this disease when aortic disease is present. This disease also brings about arteriosclerotic changes in the walls of the blood vessels. Arterial aneurysms, except as a result of traumatism, are nearly always due to syphilis.

Enlargement of the liver and spleen is very commonly found to be present in syphiltic disease. When one finds these organs enlarged syphilis as a possibility must always be considered.

Inability or extreme difficulty to pass food from the throat into the stomach would speak for some obstruction in the course of the esophagus. Syphilitic disease must be confirmed or excluded in such complaints. Syphilis of the stomach may simulate cancer very completely. Of course, here it is quite likely that one might find cancer of the stomach in a syphiltic person. A differential point, which is quite helpful in determining which condition is present, is that the X-ray picture shows in the syphilitic involvement irregular but well differentiated margins, while in cancer the margins are very apt to be irregular and poorly differentiated. Syphilis of the stomach may present symptoms of ulcer. I have seen cases upon whom the operation of gastroenterostomy had been done for the relief of pyloric ulcer who got no relief until, at a later time, when, after finding a positive Wassermann, they were given specific treatment, with complete relief of their sufferings.

In syphilitic ulcerations of the intestine it is quite frequent to observe symptoms of chronic intestinal indigestion. Severe pain at any location in the abdomen without evidence of acute abdominal inflammation must be considered as possibly being a crisis due to syphilis involving the spinal nerves. Paralysis of the bladder and rectum is highly suggestive of syphilitic disease of the spinal cord. In strictures of the rectum the probability of this condition being due to syphilis must be seriously considered. On one occasion I saw a woman of 35 who was suffering with abdominal distress and obstipation of one week's duration. Within two days she had taken sixteen compound cathartic pills and two drinking glasses full of castor oil without any bowel movement resulting. A proctologic examination revealed a stricture of the rectum, occluding the lumen almost completely. This was dilated and the

patient's condition relieved. This proved to be of syphilitic origin.

The polyuria of diabetes insipidus is suggestive of a possible luetic infection because this disease is known to be the cause of one-third of the cases of diabetes insipidus.

Acute syphilitic nephritis occurs in about four per cent of cases of syphilis in the secondary stage. It is important to remember that when a nephritis is present in a syphilitic person, this disease must be considered as a possible cause for it. Syphilitic cystitis presents the usual symptoms of an acute cystitis. It occurs in a small percentage of cases; however, it is important to remember this disease as a possible cause of the condition. Chronic interstitial orchitis or irregular enlargement of a testicle with detectable masses, may be of luetic origin. Abortion must be considered as possibly being the result of luetic disease, and the patient must be examined with the view of confirming or excluding it. A primary chancre of the cervix may be considered to be a carcinoma. It is proper here to examine the cervical material by the dark field method when there is induration with ulceration of the cervix present.

In infants and children it is important to remember some of the conditions that would strongly suggest luetic disease: snuffles; mucous patches; paralyses; convulsions; deformities of the nails; eye disturbances, especially interstitial keratitis; rashes; dactylitis; enlargement of liver and spleen; condylomata; and chronic adenitis. It is also proper to consider syphilis as a possible cause of anemia and under-nourishment in children.

Syphilis is more than a genito-urinary or dermatological manifestation, and should be considered as a disease which may present manifestations in any part of the body. It is a generalized infection and not a regional disease. I have made no differentiation of stages of the disease in this paper, for the reason that syphilis must be considered as an infection of all the tissues and fluids of the body with the Treponema pallida, which produces local manifestations of a diversified character found in no other disease.

I would here make a plea for routine Wassermann work to be done, and the other helpful syphilitic tests as indicated. It must be remembered that we are having a more educated laity to deal with as time goes on, and it seems to me that the frequency of requests by the laity to the doctor for Wassermann tests to be made is indicative of the doctors' lack of medical forethought and diagnostic acumen. I have repeatedly had doctors to tell me, at the time of sending a blood specimen to our laboratory for Wasserman test, that they had not considered it at all necessary to have this work done, but that the patient insisted upon it: and the surprise has been great to these doctors to find a high percentage of positive tests in these instances. Let us profit by our past diagnostic errors and strive for greater efficiency in our life's work, and thereby render a greater service to suffering humanity.

Discussion.

Dr. C. Lydon Harrell, Norfolk:—This paper of Dr. Willis's is an excellent one. Syphilis of the lung impressed me very much. I wish to call especial attention to it, for I believe it is often overlooked by many of us. Drs. Floyd, Boutwell and Leonard, of Boston, called our attention to this about a year and a half ago, mentioning that there were three pathological types, first, interstitial pneumonia, producing chronic induration of the lung substance, involving a whole lobe or a circumscribed indurated area towards the hilus; second, the diffuse lobular fibrosis, and third, gummata.

The X-ray will help us a great deal in recognizing gummata of the lung, and also in the enlarged glandular type, but in the interstitial type it is very difficult to differentiate from tuberculosis or some other chronic inflammatory condition. The State Board of Health is doing **Wassermanns Free of Charge.** If we do not do a Wassermann in these cases it is entirely our fault. Whenever you have a case with pronounced physical signs and slight clinical symptoms, syphilis of the lungs should be suspected, and a Wassermann test should be done.

We know that tuberculosis and syphilis work together and help to weaken and destroy the human organism. Even though the Wassermann test is negative, it is oftentimes best in many far advanced cases to try the therapeutic test. I have fallen down several times myself; it is a question that requires a great deal of thought, and more attention should be given to the Wassermann test in pulmonary cases.

Dr. J. D. Willis, in closing:—Don't let a negative Wassermann exclude syphilis. You have got the spinal fluid and other tests to reckon with, and one will be surprised to find that a large percentage of negative blood Wassermann patients will show the other tests to be positive.

THE IMPORTANCE OF ROUTINE BACTERIOLOGIC STUDIES IN EYE DISEASES.*

By EMORY HILL, M. D., Richmond, Va.

The majority of infections of the conjunctiva and cornea are recognized and designated

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according to the clinical appearance and treated by generally accepted methods aiming at cleanliness, relief of pain and protection of the eyes from light and contaminating influences in the surroundings. The microscopic examination of smears and cultures of the conjunctival secretion is often regarded as a refinement of diagnosis to be utilized when a protracted or unusually virulent disease occurs, but the regular study of such smears or cultures is generally neglected on the grounds that negative results are so often obtained, unless the cases are seen at the very beginning, and the treatment is so seldom modified by the discovery of one or another of the usual pathogenic organisms, that it is a waste of time for the busy practitioner to concern himself with the bacteriology of external eye diseases.

This attitude of neglect is unfortunate. It encourages clinical guessing where exact knowledge is obtainable, and it makes difficult what should be an easy part of one's routine. The man who seldom makes a smear regards it as a time-consuming task, and is likely to fail to do it, or have it done at a laboratory, when it is urgently needed. There can be scarcely any difference of opinion in regard to the importance of determining the presence of the gonococcus in a purulent conjunctivitis, or of determining the flora of the conjunctival sac before an operation which requires an incision into the eyeball, as the cataract and glaucoma operations. There is not a general agreement, however, about the utility of routine smears from infected eyes. The purpose of this paper is to suggest some of the reasons why such routine use of the microscope is abundantly worth while for the satisfaction of the doctor and the benefit of the patient.

In the first place, scientific curiosity and the desire to obtain as much exact information as possible about any disease process prompts one to look for the cause. Even when no practical result is obtained in the way of different treatment, the cellular character of a smear of the conjunctiva gives information about the type of inflammatory process present. The significance of polymorphonuclear leucocytosis in the secretion of the conjunctiva is different from that of a mononuclear leucocytosis. One who makes it a habit to examine smears daily is constantly gratified by the clearer understanding of the causation, probable course and necessary treatment of his patients. Where negative results occur, he has no more wasted time than has the general practitioner who finds his patient's urine normal.

From the standpoint of prognosis and treatment, we have at least four organisms to deal with in conjunctivitis about which positive information is essential.

The *pneumococcus* produces sporadic cases of conjunctivitis as well as the epidemic form commonly known as "pink eye." The Koch-Weeks bacillus is a prolific source of pink eye in some communities, but the pneumococcus in many localities is the chief cause of these epidemics. The treatment of pneumococcus conjunctivitis does not differ from the ordinary, but the prognosis is important. This disease ends by crisis, as does pneumococcus infection of the lungs. After finding the pneumococcus in a smear of the conjunctiva, which is easy to do since the pneumococcus can be identified morphologically and seldom requires culture, one can predict that the inflammation will run its course for a week or ten days and suddenly clear up. This knowledge prevents dissatisfaction at the apparent uselessness of treatment, and also prevents undue faith in any particular drug which may be used at the time of crisis.

The *gonococcus* causes perhaps the most serious conjunctival inflammation which we are called on to treat. There is a tremendous accumulation of pus with edema of the conjunctiva and lids and maceration of the corneal epithelium, corneal ulcer and perforation with destruction of the eye, if the disease is not treated promptly and continuously with the utmost care. Other organisms may produce a conjunctivitis which is clinically as alarming as a gonococcus infection; for example, the streptococcus. Both in the infantile and adult cases this disease has a social aspect which makes the identification of the germ important. Not all ophthalmia neonatorum or adult ophthalmia is due to the gonococcus. The danger to the other eye of the patient, if the disease is unilateral, and the danger to those who come in contact with the patient, varies according to what offending microorganism is present. Mild cases which show gram negative diplococci within the pus cells require careful cultivation to distinguish the gonococcus from the meningococcus and micrococcus catarrhalis; but cases with an abundance of pus, showing

a gram negative diplococcus, should be treated as gonococcus until disproved.

The *diplo-bacillus* of Morax and Axenfeld is a large gram negative organism, but little known in general bacteriology, which produces a good deal of conjunctivitis. It is responsible for a mild, chronic, catarrhal inflammation which persists for months, or years, with constant annoyance to the patient. The clinical picture may be fairly definite consisting of a redness limited to the region of the external and internal canthi, and known as angular catarrh of the conjunctiva. This disease is not amenable to any of the ordinary treatment applied to conjunctivitis. Silver nitrate and the various organic silver preparations have no effect on it. Salts of zinc, sulphate and acetate, are specific for this type of conjunctivitis. A disease which lasts indefinitely, carrying the patient from one doctor to another without relief, can be cured in a week or two by the use of zinc salts applied to the conjunctiva.

The clinical picture just described may be produced by other organisms, and the diplobacillus occasionally presents a very different picture. I have seen a purulent conjunctivitis of such severity as to suggest immediately a gonorrheal origin. The patient had at the time a gonorrheal urethritis. The secretion from the eye showed the diplo-bacillus in pure culture: thus gonorrheal infection was excluded and a favorable prognosis given instead of an alarming prognosis, and a rapid cure effected by the use of zinc sulphate. This case illustrates the importance of investigating the bacteriology of conjunctivitis and not depending upon the clinical diagnosis alone.

The so-called membranous conjunctivitis corresponds quite well to the similar affections of the throat, and the same necessity exists for finding out whether the *diphtheria* bacillus is present. The tenacious character of the membrane with a bleeding surface left after removal is not sufficient. The streptococcus produces the same type of membrane. It is imperative that antitoxin be used locally and generally in diphtheritic conjunctivitis.

Two types of *corneal ulcer* are seen, one notoriously disastrous, the other less serious, for which we have specific therapy.

The *pneumococcus*, which produces a moderately severe conjunctivitis ending by crisis, is the cause of the so-called serpent ulcer when it lodges in the cornea. This ulcer usually follows a trifling injury from a sliver of wood or twig of a tree. It steadily progresses destroying the cornea and finally ends with the loss of the eye. The organisms lie in the connective tissue substance of the cornea beneath an overhanging edge inaccessible to ordinary application. Ethylhydrocupreine hydrochloride, or optochin, in 2% solution freshly made, is a specific for pneumococcus ulcer of the cornea. The method of applying the drug is of the utmost importance. When it is merely dropped into the conjunctival sac, it does not come in contact with the organisms, and this inadequate method is responsible for the failure to get results. The drug must come in contact with the pneumococci which are imbedded in the cornea. The surface of the ulcer must be curetted to remove the debris and the overhanging edge, beneath which the infection is advancing, must be removed. Then the drug can be applied with a swab. This treatment should be made daily, the massage of the ulcer being continued for 15 to 20 minutes. Usually one treatment checks the infection and in 3 or 4 days the progressive ulcer has been converted into a healed ulcer, the inflammatory exudate in the anterior chamber absorbing and the redness of the eye diminishing. It is no exaggeration to say that optochin properly applied to a pneumococcus ulcer of the cornea is a specific cure for one of the most disastrous diseases which attack the human eye.

The other corneal ulcer for which we have specific therapy is that caused by the *diplobacillus* of Morax and Axenfeld. The sulphate of zinc in 1% solution massaged into the ulcer will promptly bring about healing, just as it cures a conjunctivitis caused by this organism.

The study of the conjunctival secretion *before eye operations* is a well recognized requirement. It is perhaps desirable to emphasize that a smear is of more value than a culture in this instance, since the character of cells contained in the conjunctival secretion is an index to the type of microorganisms present. The diphtheroid known as the xerosis bacillus, and the white staphylococcus, are common inhabitants and do not contraindicate operation, but the presence of polymorphonuclear leucocytes should cause the surgeon to postpone operation until the conjunctiva is clean.

The presence of any of the disease-producing bacteria constitutes a warning against operation.

One other non-bacterial finding in the conjunctiva is of considerable importance from the standpoint of prognosis. The disease known as vernal conjunctivitis, or *spring catarrh*, is much more frequent than the recorded cases would indicate. The clinical appearance of this disease may be quite typical, consisting of granulations in the palpebral conjunctiva, covered by a thin film of mucus which is like skimmed milk, and thickenings of the conjunctiva adjacent to the cornea in the palpebral fissure. Occasionally this disease requires to be differentiated from trachoma to which it bears a resemblance in atypical cases.

Spring catarrh is an inappropriate name, since the disease is not a catarrhal inflammation and does not necessarily appear in the spring. It may occur at any portion of the hot season. While harmless, it is exceedingly disagreeable and alarms the patient who tries all sorts of remedies at the hands of all the doctors available in his community and gets no material relief until cool weather returns.

Spring catarrh is in all probability an anaphylactic reaction similar to hay fever, and like other anaphylactic processes is characterized by an eosinophilia. The text books as well as current literature fail to emphasize the importance of the characteristic eosinophile secretion of the conjunctiva. Not only can the occasional case which simulates trachoma be differentiated by the finding of eosinophiles, but the cases without granulations, characterized by itching of the lids in warm weather, can be diagnosed by the simple expedient of making a Wright's stain as one does for blood and observing the polymorphonuclear leucocytes present in the tears, with coarse granules taking the eosin stain.

Routine Wright's stains on cases of conjunctival irritation characterized by itching in hot weather will identify a good many cases of spring catarrh which would not be suspected from the clinical picture. The treatment of these cases is very discouraging, but one can at least save the patient from useless treatments and the profession from the distrust which these patients naturally feel when they are given remedies for apparently trivial conditions and assured that they will soon be well. It can be prophesied that a conjunctivitis, however slight, with eosinophiles in abundance in the secretion will last until cool weather, and that only temporarily palliative treatment will be of any benefit.

PROFESSIONAL BUILDING.

Discussion.

Dr. S. H. Toy, Stony Creek:—I would like to ask Dr. Hill in concluding the discussion if he gives a general anesthetic in serpent ulcer of the cornea, or a local anesthetic when he massages the cornea 10 or 15 minutes. I would like also to ask if a change of climate will relieve cases of spring catarrh.

Dr. H. S. Hedges, Charlottesville:—I would like to ask Dr. Hill in reference to gonorrhœa whether it is not much more virulent in the adult and if the majority of our adult cases do not get their infection from acute gonorrhœa?

Your paper is one of the most valuable I have heard down here and just the touch that the specialist and general practitioner will want to keep up with each other. I feel that it is a very valuable statement for all of us who listened to it this afternoon.

Dr. Hill replying to the above questions:—In regard to the anesthetic,—two or three drops of four per cent cocaine solution introduced into the eye at intervals of three or four minutes will give you complete anesthesia to the surface of the eye. I prefer to give holocaine instead of cocaine or some other similar drug as apparently it is less damaging to the corneal epithelium and produces no harmful effects and no dilatation of the pupil. I have not had any experience with optochin in pneumococcus conjunctivitis.

In regard to the climate in Spring catarrh, I can not give you any definite information. Spring catarrh is so seldom recognized that we haven't much information to follow. The examination we usually make is to see if eosinophiles are present. This finding reveals cases which we should never dream of calling Spring catarrh clinically.

In reply to Dr. Hedges: I suspect that his explanation is right. I have advanced that as a possible explanation a number of times, but have never gotten any cordial response. The eye men lay a great deal of stress on the thickening of the adult conjunctiva as opposed to the very thin conjunctiva of a new born baby.

Dr. Hedges:—If you get considerable eosinophilia, what relation does that bear to the eosinophilia in the blood?

Dr. Hill:—They give the eosinophila in the blood as well as in the conjunctival secretion.

Dr. Hedges:—In their relation to latent parasites?

Dr. Hill:—So far as we know, none. We naturally think of intestinal parasites when we have eosinophiles. No one has discovered this connection, and we simply know that with the exception of very rare conditions like trichinosis and pemphigus this is the only eye condition in which we get eosinophiles.

Question: Does the patient show trouble in the palpebral or the bulbar conjunctiva?

Answer:—It is divided into two types, one where the palpebral conjunctiva has the cobblestone like granules; the other where the bulbar or conjunctiva is thickened in the palpebral fissure on either side

of the cornea; and then the mixed types are spoken of in which both parts of the conjunctiva are involved.

Question:—It must be very unusual and difficult to distinguish from trachoma.

Answer:—Some cases are very difficult.

RUPTURE OF THE DIAPHRAGM WITH A HERNIA OF THE STOMACH, SPLEEN AND TRANSVERSE COLON INTO THE LEFT PLEURAL CAVITY, AND A COMMINUTED FRACTURE OF FOURTH LUMBAR VERTEBRA.*

By S. S. GALE, M. D., F. A. C. S., Roanoke, Va.

W. E. G., age 20, male, white, laborer, employee of the Virginia Bridge and Iron Company.

March 4th, 1919, about 8:00 A. M. while assisting in moving some heavy steel plates with a traveling crane he was struck over the right lumbar region and rendered unconscious. He was immediately brought to the hospital in an ambulance. Patient was found to be a robust, well-nourished, muscular young man. The pulse were very rapid and thready, almost imperceptible. Respirations were shallow, rapid and labored. Color was bluish. Patient was very restless and covered with a cold, clammy sweat, and suffering from great shock. One-quarter grain of morphine was immediately administered and he was put to bed, well covered with warm blankets and surrounded with hot water bottles. The pulse gradually picked up, patient became conscious and very thirsty and he slowly re-acted from the shock. Several hours after this a careful physical examination was made. Heart was found to be on the right side with the apex beat about two and a half centimeters to the inner side and below the right nipple. There was dullness on the right side and very shallow respiration. On the left side the respiratory murmur was very distant, in fact absent from the fifth interspace down. Percussion over this area was tympanitic. Auscultation over this area, on shaking the patient slowly, elicited the sign of succussion or splash. The whole abdomen was board-like with considerable pain just above the pubes. Pressure over the abdomen gave the patient relief from pain. The left chest was carefully aspirated at about the sixth interspace but no blood was found. The manometer reading was nearly zero. Up to this time we were unable to make a diagnosis beyond the fact that the patient was evidently suffering from serious internal injuries. Following this examination the patient was taken to the X-ray room and two plates made of the chest, one posteriorly and one anteriorly. The X-ray report was as follows: Rupture of the left diaphragm with evisceration of the stomach, almost completely into the left pleural cavity, compressing the left lung and pushing the heart to the right. This cleared up the diagnosis.

At 9:00 P. M., thirteen hours after the receipt of the injury the patient was taken to the operating room and under ether anesthesia with the patient on his right side an incision twelve centimeters long was made beginning just a little behind and posterior to the axillary line on the level with the lower border of the ninth rib. About ten centimeters of the eight and ninth ribs with muscles attached were reflected upward. Immediately upon opening the pleural cavity a portion of the stomach and omentum bulged into the wound. Upon retracting the chest wall widely, practically the whole of the stomach, transverse colon and spleen could be seen lying above the diaphragm and extending up to the lower border of the fifth rib in the left pleural cavity. The torn edges of the diaphragm were caught up with artery forceps and the spleen, transverse colon and stomach were replaced in the abdominal cavity and held there with a large tape sponge. The rent in the diaphragm, which was about ten centimeters long, extending from the esophageal opening downward and backward, was closed with a double row of continuous chromic gut sutures, including the peritoneum on the under surface of the diaphragm and the pleura above. This was closed without difficulty. Toilet of the pleural cavity was made and the rectangular flap was closed with a double row of continuous chromic gut sutures, and the skin with interrupted silkworm gut. No drainage. Patient left the table in better condition than he went on with pulse of one hundred and thirty, fairly good volume. Respirations very much improved, deeper and slower. Stomach was then washed out and the

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patient put to bed with head of bed elevated abont twelve inches. Time of operation, forty-three minutes.

Following this operation the patient had retention of nrine, complained of severe pains in both limbs with loss of sensation and considerable loss of motion. These symptoms led ns to suspect that he had an injury to the cord. Two weeks after the receipt of the injury a second radiograph was made of the lumbar vertebrae which showed a comminnted fracture of the fourth lumbar vertebra with more or less displacement of various fragments.

Neurological examination made by Dr. B. R. Tucker, of Richmond, on April 14th, about six weeks after receipt of the injury was reported as follows:

"Mr. G. has a fractured lnmbar spine bnt from looking at the radiograph and my examination I believe there is room enough for the nerve roots to come throngh. I think the worst injury is in the region of the fourth lumbar and this is below the cord itself. He either had some hemorrhage or pressure on the nerve roots but this seems to be clearing up. He has partial paralysis of the lower extremities but no incontinence and the sensation is normal to touch and pain. He has some shooting pains in the legs but I think this accompanied the returning sensation. He also has some paresthesias. He has a donble foot drop which is getting better. I believe with massage and faradic electricity that motion in the feet will return and that the chances are largely in favor of his complete recovery."

Herniae may be congenital or acquired, namely traumatic. A traumatic hernia may be immediate or late. Ninety per cent of diaphragmatic herniae are false, devoid of sac, the peritoneal covering being absent, hernial organs naked in the thoracic cavity. In ten per cent of the cases the hernial mass has a peritoneal sac. Diaphragmatic hernia occurs on the right side in only eight per cent of cases. This is largely due to the liver which protects the right side of the diaphragm and acts as a bnffer. The abdominal organs escape through the rupture in the following order: omentum, stomach, colon. The small bowel, spleen, liver, kidney and caecum have all been found in the chest cavity. In the case of an open wound with protrnding abdominal viscera there can be no excuse for overlooking a diaphragmatic hernia. If only a small portion of the omentum escapes into the chest the only symptoms present may be those of indigestion and malaise from adhesions and the hernia may be overlooked. When a hollow viscus is incarcerated the physical signs are those of pneumothorax. Diagnosis is easily made by the Roentgen rays, sometimes by giving a bismuth meal or by the passage of a stomach tube. If the incarcerated organ is the stomach it will show above the diaphragm. Negative findings would not exclude a hernia because it might be some other organ than the stomach. In order to show the stomach it is not necessary to give a bismuth meal or nse a stomach tube as was distinctly illustrated in my case in which the ontline of the stomach and a large air bubble were both plainly visible above the diaphragm on the X-ray plate.

Diaphragmatic herniae are nsually discovered at post mortem. Some of these cases recover from the immediate injury and later develop serions conditions. Some congenital or acquired cases rnn long and obscure courses which are difficult of diagnosis but usually if diaphragmatic hernia is borne in mind it can be worked out from the history, physical findings and radiographs as has been well illustrated by Serosi in a recent article in Annals of Surgery in which he reported a number of cases.

The mortality of rnptnre of the diaphragm with hernia is very great if not operated upon. Tnmors of the diaphragm and purulent conditions of the lung may be mistaken for diaphragmatic herniae, also eventration of the diaphragm. Treatment for this condition has undergone wonderful advancement within the past few years. Twenty-five years ago no cases were operated on. See Holmes' "System of Surgery, 1881," Von Bergmann's "Surgery, 1904," Ferguson's "Operations on Hernia, 1917," Ochsner's "Clinical Surgery, 1917," Mumford's "Practice of Surgery, 1911," Binney's "Surgery, 1914," all of which refer to this condition in a very cursory and unsatisfactory manner.

Two successful cases have been reported by Dr. Stuart McGuire, one of which had a stab wound of the thoracic cavity. This hernia evidently resulted from the blow and injury inflicted on the abdomen, and the stomach had evidently passed into the pleural cavity when

the stab wound was made. The second case was a man who while working on a roof fell a distance of about thirty-four feet, receiving various injuries, and at which time his diaphragm was ruptured. This case was operated on about seven months after the receipt of the injury.

Dr. John D. S. Davis, of Birmingham, Alabama, reports five cases, four of which were successfully operated upon, and all four of which were stab wounds into the pleural cavity. The first case was a rupture of the diaphragm due to a severe strain. This case was not diagnosed and the man died four days later. Post mortem revealed the rent in the diaphragm with the entire stomach and a part of the transverse colon in the pleural cavity.

So far as I know no other case than the one herein reported has been diagnosed and successfully operated on within thirteen hours after the receipt of the injury, and complicated by a fracture of a lumbar vertebra. All of these cases should be operated upon. When operation is decided upon there are two routes to consider, namely the abdominal and thoracic. The abdominal route probably is better for certain selected cases of congenital herniae. Through this route it is very difficult to reach the diaphragm and should adhesions be present it further complicates matters. Mayo reports two congenital cases successfully operated by this method. It is also difficult to suture the diaphragm through this incision. The one advantage is should there be an injury to any of the abdominal viscera it could be repaired through the same incision.

The thoracic route offers the greatest advantages. It is the most direct route. By using the Cranwell trap door opening with the base above one has all the room that is necessary. The air enters the pleural cavity and the suction power of the thorax is abolished and the replacement of the hernia is easy. It also makes the suturing of the diaphragm easy. The two objections to this method are, first the danger of pneumothorax, which I am sure is wholly theoretical, and second this route does not permit the exploration of the abdominal cavity and should there be an injury to any of the abdominal viscera it requires a second incision. According to my experience based on the one case, the thoracico-abdominal route should be the one of choice.

CHRONIC KNEE STRAINS.*

By H. PAGE MAUCK, M. D., Richmond, Va.

There is no type of joint injury more frequently encountered by the surgeon or general practitioner than the sprained or strained knee and no type of acute injury apparently gets well with so little treatment only to return as a chronic condition. The histories of the majority of these chronic sprains, recurrent traumatic synovitis, and foot-ballers' knees or internal derangements of the knee are very similar. There is usually a twist or a blow on the outer side of the knee, the joint swells and is very painful to motions—the patient is put to bed with some local application or a bandage applied. In three or four days the swelling has subsided and the soreness to a large extent disappeared. The patient is allowed or even encouraged to walk—for ten days or two weeks he has some discomfort and spares the knee in getting about. Another week and the knee is regarded as well only to find that with the slightest trauma, a misstep in ascending the stairs or a jump from the moving car flares the joint up with a recurrence of the fluid and the painful condition. Again it clears up with rest only to recur again. The condition is then put in the class of the chronic traumatic joints.

Why the knee is so liable to injury and why so many injuries become chronic, is easily understood when one considers the anatomy and mechanism of the joint. The knee is primarily a hinge joint except in extreme extension, when there is a twisting outward of the tibia on the femur. On account of its position between the two longest bones in the body it is subjected to tremendous leverage. The contour of the bones furnishes very little support to the joint, so that its stability is absolutely dependent upon its ligaments and the muscles arising or inserted near it. Of the former the most important extrinsic are the internal and external lateral, posterior and ligamentum patellae, the latter which is in no sense a true ligament, but only a part of the quadriceps tendon with the patella as a sesamoid. The capsule is simply a fibrous expansion passing laterally from one of these structures to the

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other, being attached above to the femur and below to the tibia. The internal lateral ligament, the most frequently injured of all the ligaments, extends above from the inner condyle of the femur to the inner side of the head of the tibia. It is placed posterior on this surface, a fact that has great significance in rendering it liable to injury. When the leg is extended it is tense but when flexed it is relaxed acting only as a check rein on external rotation and abduction of the leg. It is in intimate association with the capsule and the internal semilunar cartilage is firmly connected to it. The external lateral ligament, reinforced by biceps tendon, extends from external condyle to the head of the fibula and is separated from the capsule by the poplitens muscle and bursa. The principal intrinsic ligaments are the anterior and posterior crucials, the anterior extending from near front of spine of tibia upward and outward and backward to the inner side of the external condyle, the external from the posterior groove on the head of tibia upward, forward and inward to the outer aspect of the inner condyle. The crucials prevent forward and backward displacement of the tibia or the femur. The coronary ligament joins the semilunar cartilages to the head of the tibia.

The most important agents in preventing lateral mobility of the knee joint are the lateral ligaments. However, when the knee is flexed the internal lateral ligament is relaxed and abduction and external rotation of leg are possible, these motions being only limited by the internal lateral ligament as a check rein. In other words, in flexion the joint becomes more unstable. Griffeths contends, however, that it is the crucials that limit lateral mobility when the leg is flexed. Be that as it may, it is certain that if the internal lateral ligament is torn by forced abduction or external rotation, the crucials are the next check and are likely to be injured. In spite of the strong ligamentous structures, that the muscles, especially the quadriceps, are most potent factors in maintaining the integrity of the joint is evidenced in the relaxed knee joints seen in poliomyelitis when the thigh muscles are involved.

It is agreed by nearly all authorities that most knee injuries occur when the knee is flexed and the leg rotated outward, that is when the knee is least stable. It is in this position that greatest abduction and external rotation are possible and the first check to these is the internal lateral ligament—and this is the structure that is first torn or stretched when these motions are carried beyond the normal limit. Secondly the internal semilunar may be torn away from its attachment to the head of tibia on account of its connection with the internal lateral ligament, and thirdly, the crucials, the second check to abduction and external rotation may suffer. In extreme trauma even the spine of the tibia may be torn off.

Now whether only the internal lateral ligament has been torn or all of these structures injured, the treatment of the acute case is the same. This is fixation in the extended position until the torn lateral ligament has healed. Of course, in those cases where the cartilage has been dislocated and locks the joint, it is necessary to reduce it. This can be done by the Jones method. The joint must be fixed for four or five weeks, preferably on a posterior splint so that after the first week daily massage can be given the thigh muscles. Exercises of the thigh muscles, care being taken to allow no lateral motion, are very beneficial after the second week. Such treatment of the acute injuries would result in far fewer chronic traumatic knee joints.

In the chronic joints the same structures have been injured and no chance has been given them to heal. The internal and crucial ligaments have become lengthened from the repeated tearing or stretchings—the cartilage may be loose—the synovia has become chronically hypertrophied and the joint more unstable. The thigh muscles waste from disuse and the instability of the joint predisposes it to injury —and each recurrence exaggerates the factors that produce the instability, thus a vicious circle.

Subjective symptoms are recurrent attacks of synovitis with or without locking. The important objective symptoms in these chronic knees are—increased lateral mobility—tenderness over the injured ligament or cartilage, at times the cartilage can be palpated, and the atrophy of the muscles of the thigh. The last named was forcibly brought to my attention in collecting 159 cases of chronic traumatic knees. All gave a history of an acute strain but only 21 apparently received any greater amount of treatment than rest and bandaging with or without local applications for a few days, until the condition had recurred several

times. Eleven had eventually been operated for semilunar cartilages, while a great number had worn plaster casts for various periods. Of the 159—136 showed an atrophy of over ½ inch of the thigh of the affected side.

The treatment of these chronic knees depends upon whether there is a history of locking or not. In those cases in which there is a history of repeated locking—operation for removal of loose cartilage or loose body is indicated with after-treatment the same as cases with no locking. Where there is no history of locking the treatment should aim first at protection of the joint against recurrence, allowing the lateral ligament and synovia to recover and developing the muscles to the highest point of efficiency to add to the stability of the joint. First, if there is effusion in joint, rest in bed with snug bandaging until the fluid has subsided. After this it is absolutely necessary to prevent lateral mobility, the very thing that will pull or stretch our torn structures. Elevation of shoe on inner side and application of properly fitting brace—such as Campbell knee brace or knees cage as devised by Robert Jones will accomplish this. And, in that the muscles are so important in stabilizing the joint and that such a large percentage of chronic knees show an atrophy—no treatment that does not aim to restore these will be efficient. There should be daily massage with systematic exercises, especially of the quadriceps; the latter can be carried out very easily by having patient sit on table with legs hanging over edge—simple flexion and extension will bring the muscles into play. With a weight on the foot more muscular power can be required. Bristow recommends graduated contractures of muscles of thigh with the Bristow coil.

That the elastic knee cap, as is so often prescribed in these cases, is useless and even harmful, is apparent, in that it does not prevent lateral mobility but interferes with the free use of the muscles, which are already atrophied. Cases with extreme lateral mobility will require operation on internal lateral ligament, reinforcing it with the semimembranoses or sartorious as devised by McMurray.

No discussion of chronic knees would be complete without reference to those in which the infrapatellar pad has been bruised or hypertrophied. Recurrent synovitis with painful full extension and definite tenderness over the infrapatellar pad are the principal symptoms, Increased lateral mobility is not marked in these cases unless accompanied by injury to internal lateral ligament. The conservative treatment consists of fixation in slight flexion for a few weeks, when patient is allowed about, elevation of heel of shoe 1 inch which prevents the pad being pinched in walking.

Operation for removal of the hypertrophied and bruised pad has given excellent results.

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Professional Building.

SPONTANEOUS RUPTURE OF THE UTERUS: A CASE REPORT.*

By M. PIERCE RUCKER, M. D., Richmond, Va.
Physician-in-charge, Woman's Hospital.

Rupture of the uterus is sufficiently serious and rare to justify individual cases being reported. The literature each year contains three or four such reports. Most of the ruptures occur either through old Cesarean section scars, in neglected transverse presentations, or late in the second stage of labor when there is some insurmountable obstacle to the birth of the infant. The cases that follow the use of pituitrin do not usually get into the medical journals. This is probably due to several factors. The cause of death is often not recognized, and the attendant is content to say as little about the case as possible. Then too, the use of pituitrin to hasten delivery is more common in rural districts, away from medical centers, where there is little incentive or opportunity to report cases.

We are too prone to think that this complication requires great force, and that its occurence is indicated by sudden and spectacular symptoms. N. Shufflebotham[1] reports a case of spontaneous rupture of the uterus with the membranes intact. S. L. Graham, who operated on this case had seen two similar cases. All three of these women had borne a number of children in rapid succession. Shufflebotham's case is interesting also, in that the rupture occurred in the fundus, while it is the rule that, where rupture occurs after labor has begun, the rent is in the lower uterine segment. The case I wish to report tonight is that of a woman in the first stage, although the membranes ruptured at the onset of labor, who had had no hard pains.

Case No. 372, white, married, age 36, consulted me, in her second pregnancy, first on August 13th, 1919. Her family history is unimportant. She has had no serious illnesses. When she was pregnant the first time she had a laparotomy done in the first half of her pregnancy. Dr. C. A. Hamann, of Cleveland, writes me concerning the operation as follows: "In reply to your enquiry, I would say that on the 8th of October, 1917, I operated on her, with the pre-operative diagnosis of sub-peritoneal fibroid and probable pregnancy. At the operation there was found a fibroid 2½x3" in diameter at the left cornu of the uterus. It was not pedunculated and it was thought that myomectomy would likely bring on a miscarriage; it was also believed that the tumor would not interfere with labor; consequently nothing was done." Her pregnancy went on uninterruptedly, and I delivered her under scopolamine-morphine on February 24th, 1918. Her labor lasted eighteen hours and ended in a spontaneous delivery. The puerperium was normal and she has continued in good health until the present time.

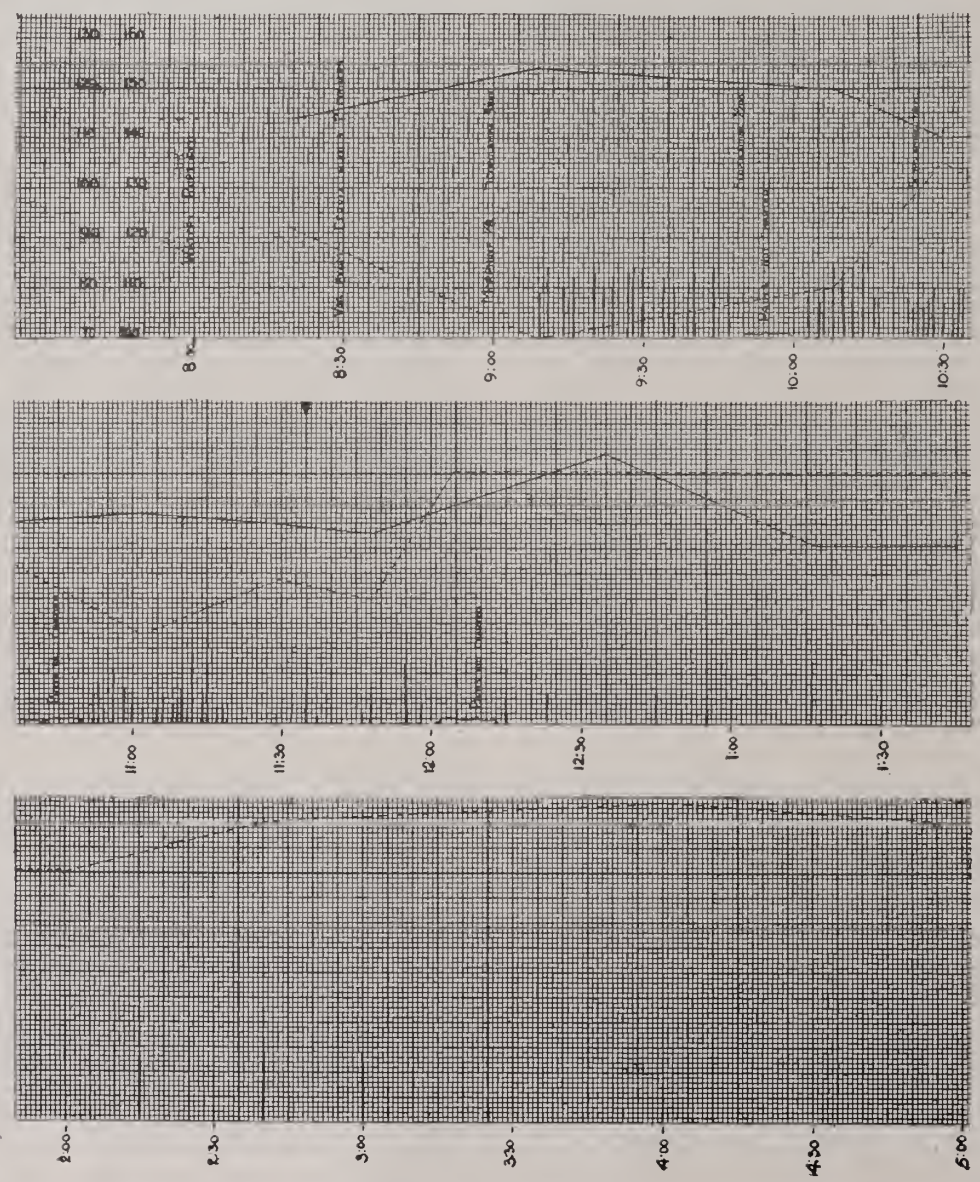
Physical examination shows a woman 5 feet, 6 inches in height and weighing 105.5 lbs. Her heart and lungs are normal; blood pressure 110 systolic, 70 diastolic; haemoglobin 63%; Wassermann negative. Her mental attitude was described as cheerful, but she was excessively nervous and complained of pain when examined vaginally. Her pelvis is normal, the measurements being Sp. I. 22.5 cm; Cr. I. 26.5; Troch 32; D. B. 19; Ob. R. 21; Ob. L. 21; Circ. 78; height from the symphysis to umbilicus 19 cm.; to fundus 16; to the ensiform 37; Tuber ischii 10.25; Ant. sagittal 5; Post. sagittal 6; Ant. Post. 10; Estimated conjugata vera 10 plus. The perineum was intact, and the patient had a softened uterus that corresponded in size to a pregnancy of 22 weeks duration. The urine was normal throughout her pregnancy.

On January 17th, one week before the date of expected confinement, she came into my office because she had a little "show." She was having no pains. As she lived in the country, I advised her to stay in town over night. At 7:20 P. M. patient was given an ounce of castor oil. At 8 P. M. the waters broke and she began to have pains. By 9 o'clock she seemed to be suffering a great deal, although her pains were of short duration. Vaginal examination at this time showed a cervix that was rigid and of two fingers dilatation. The head was well down in pelvis, in L. O. A. position. Scopolamine-morphine analgesia was started at the solicitation of the patient. The dosage and intervals of giving the drugs can be seen on the chart, as well as the frequency and dura-

*Read before the Richmond Academy of Medicine and Surgery, February, 1920.

(1) Lancet, Oct. 13, 1917.

tion of the pains. Each space on the chart horizontally represents one minute in time while vertically the same space represents five seconds of time. As you will notice the pains got shorter but closer together until at about 11 P. M. when they were so slight that I had to get the nurse to hold her hand on the patient's abdomen to see when the womb contracted. By 11:30, the pains had practically stopped. We considered it a case of false labor and sent all the delivery room force to bed except one nurse. The foetal heart was fairly constant as you see from the chart, beginning with a rate of 144 and never going above 154 nor below 136. At 2 A. M. it was 136, after this it could not be heard. The pulse rose from 70 to 120 and remained there for some time. At 2:40 it rose to 130 and at 4 A. M. it was noted as being weak with a rate of 134. It was about 2:40 that the patient began to have an anxious expression of the face, and to complain of a rather constant pain over her



EXPLANATION OF CHART.

Dotted line is the mother's pulse; solid line is the foetal heart. Vertical lines represent pains. Each millimeter in height of the line represents five seconds of pain and each millimeter horizontally represents one minute in time. The figures at the bottom of chart represent the time of day, the first one being 8 P. M. The figures at the left are the pulse rate and foetal heart rate respectively.

abdomen and in her shoulders. She did not have the pain on top of the shoulder that is so characteristic of irritation of the diaphragm. She was very tender and objected to being moved or to being examined. The abdomen was tense and board-like and nothing could be felt of the foetus. The skin of the abdomen pitted on the pressure of the stethoscope from 12:45 P. M. on. At 4 A. M. it was very apparent that something was wrong. The leucocyte count was 21,400, haemoglobin 60%. The urine showed only a trace of albumen, but a great number of granular and hyaline casts. It is interesting to note that the urinary findings cleared up within 24 hours. There was no external bleeding.

Two diagnostic possibilities, either premature separation of the placenta or rupture of the uterus, were considered to account for her symptoms: i. e. cessation of labor pains, a board-like distention of the abdomen, pain and tenderness, the weak pulse, the pinched, anxious expression of the patient's face, leucocytosis, and the urinary changes. Either condition causes a stopping of labor pains with symptoms of shock. The few cases of premature separation of the placenta that I have seen have shown a sudden appearance of great numbers of casts in the urine. From the published descriptions of rupture of the uterus one usually feels the foetus with startling distinction on abdominal examination. On this account and because there was no apparent causative factor for rupture, I rather leaned to the first possibility as the true explanation of the case.

Operation by Dr. A. M. Willis showed the abdomen to be filled with blood. The baby was lying free in the abdominal cavity with the placenta in an anterior rent in the lower uterine segment. There was a soft thin walled cyst of the right ovary about eight inches in diameter. A super-vaginal hysterectomy was done and the cavity cleaned with saline. The patient was badly shocked, but responded to heat, bandaging the limbs, and saline under the skin, and made a good recovery. Her temperature did not go above 100.5 except once; on the second day it went to 101.

The baby defied every effort at resuscitation. She weighed 7.5 lbs. and measured 51.5 cm. The head measurements are as follows: B. T. 8 cm.; B. P. 9 cm.; S. O. B. 9.25 cm.; O. F. 11.5 cm.; O. M. 13.5 cm.; circumference S. O. B. 31 cm.; circumference O. F. 34 cm. Although the baby made no respiratory efforts, and she was in my hands from the time she was lifted from the abdominal cavity until she became cold, at autopsy, the lungs floated in water. The autopsy report by Dr. Fitzgerald is as follows: "Skin normal, few discolored areas on forehead (purplish). Subcutaneous fat was abundant and normal. Large thymus ½ inch thick, 1 inch wide, 2 inches long. Heart large—1½ inches across, from apex upward (longest diameter) 2 inches. Lungs distended resting against parietal pleura, no fluid in pericardial sac. Lungs congested especially in lower lobes, while the upper lobes showed the pink of a normal infant lung which had been filled with air. There was normal crepitus throughout both lungs. The lungs floated when placed in water. It is probable that the child breather while within its mother's obdominal cavity.

Abdomen. Liver large, congested and purple, darker than normal and on sectioning resembles lung tissue. Gall bladder contains small amount of bile, large colon distended, but no material in it. Appendix 2¼ inches long (normal). Spleen discolored and darker, 2½ by 1¼ by ⅜. Generative organs normal. Kidney dark and lobulated, size normal. Pancreas normal. Stomach and œsophagus normal in position and size. Larynx and trachea congested but otherwise normal.

Head. There is marked congestion of the vessels on the outer surface of the brain.

The uterine wall was examined microscopically by Dr. Budd. There were the usual hypertrophied muscle fibres of pregnancy with a marked amount of intercellular blood. This picture of marked passive congestion is considered characteristic of premature separation of the placenta. Arthur Morse[2] was able to produce separation of placentae together with vascular extravasation intramuscularly, by interfering with the return flow of blood from the uterus of pregnant rabbits. He accomplished this, either by tying off the veins or by rotating the uterus on its long axis. It seems likely, therefore, that in my case the ovarian tumor so interfered with the uterine circulation as to cause an easy rupture of the lower uterine segment. Whether a separation of the placenta preceded rupture is of course conjectural. Her symptoms and signs were certain-

(2) American Journal of Obstetrics, Sept. 1919.

ly suggestive of abruptio placentae, and the microscopic picture of the uterus was what is considered characteristic of such a condition.

In conclusion, I wish to emphasize: first, the importance of having your patient under close observation the whole time she is in labor. Had this patient been at her home with home nursing or a colored "mammy," the outcome would have been much more disastrous. The most serious obstetric complications may occur very insidiously and unexpectedly. Secondly, the ease with which an uterus may rupture. This patient had no instrumental nor other manipulation, except one vaginal examination, and her medication, other than the initial dose of castor oil, was directed towards lessening her pains. She had had only first stage pains of moderate intensity, the duration of the longest of which was eighty seconds. Thirdly, the marked intercellular congestion of the uterus was probably caused by the presence of the ovarian cyst and was, in turn, a predisposing factor in the rupture. Fourthly, it is possible by artificial respiration alone to inflate the lung tissue of a newly born infant.

400 NORTH LOMBARDY STREET.

Discussion.

Dr. Greer Baughman agreed that in some cases of uterine rupture there are no indicative symptoms. In one of his cases, the measurements were such as to lead to the belief that delivery would occur spontaneously. Delivery was, however, delayed, and, finally, rupture was made out, though no symptoms developed.

Dr. B. H. Gray said the presence of the fibroid cyst would explain, in a measure, the torsion of the uterus, interfering with circulation and producing separation of the placenta. The cyst might have offered some obstruction, but he does not think there was a separation of the placenta. In all of the cases of separation that he has seen, there were no contractions, or, rather, the pains were tonic. Thinning of the lower segment and rupture there would signify obstruction in that situation.

Dr. Rucker, closing the discussion, said that the lantern slide was disappointing and did not show well, but that he thought that he had made it plain that the patient was not having hard pains and that the pains had practically ceased a long time before there were symptoms of rupture. The longest pain the patient had lasted only 80 seconds. The patient's symptoms were more characteristic of separation of the placenta than of rupture of the uterus.

HYPERTHYROIDISM.*

By C. M. RAKESTRAW, M. D., Chester, S. C.
Surgeon in Charge Pryor Hospital.

About the age of puberty when the sex functions indicate an increase in the activity of genital glands, goitres of girls show an increase in size and activity and again the gland shows a like cycle preceding menstruation. Also in women having goitres, an increased activity of the thyroid is in evidence during the early months of pregnancy and then during the menopause it often shows a deranged function all of which indicates the intimate association of the thyroid with the sex functions.

The thyroid derives its blood supply from the same source as the brain and has a vascular area equally as great which indicates the close relationship the gland bears to the nervous system. Thyroid tissue then is of a type little below that of the brain. Pathologically, hyperthyroidism is consequent upon an excessive thyroid secretion, excessive in that more of the normal secretion is thrown into the circulation than can be utilized or neutralized by the metabolic processes of the tissue.

A goitre must not necessarily be increased in bulk in order to produce toxic symptoms, but an increase in the amount of secreting cells, a hyperplasia is in evidence. In fact the gland may be small, the entire gland being hyperplastic.

Then, thyroid of a colloid character may be large and without symptoms other than tumor for years, then suddenly become toxic, indicating a sudden awakening into activity of a small circumscribed area of secreting cells, supplying an excess of secretion above that demanded by the tissue. Therefore, in the diagnosis of goitre, tumor is by no means a necessary concomitant nor is its presence or absence a necessary part of the syndrome of hyperthyroidism.

In the symptomatology, tremor is often the earliest symptom. Then early comes a psychic symptom, a fear, a dread of some impending evil. The patient is depressed, emotional, yet controls the expression. The patient never loses hope, is never in despair. During attacks, a sense of epigastric pressure is complained of—the mystical nervous indigestion. — palpitation of the heart and tachycardia from which she is at times awakened from sleep and with this is air hunger. Later, she begins to lose weight, has diarrhea and the metabolic processes of the body become too much over-balanced by the hurry of the cells for the supply of nutrition to be utilized. There may or may not be exophthalmos and there

*Read before the Tri-State Medical Association of the Carolinas and Virginia, February 19, 1920, at Charlotte, N. C.

may or may not be an appreciable enlargement of the thyroid.

Hyperthyroidism is a chronic affection, the symptoms beginning very gradually, as a rule, and seldom running an acute course. When the disease has existed over a period of years, or say a year or more, and the symptoms are extreme, permanent changes occur in the heart, kidneys or liver.—dilatation of the heart, degenerative changes in the kidneys and the liver.

Lewis B. Wilson, pathologist for the Mayos, states:

"In a recent analysis of the lesions discovered in 1244 consecutive autopsies made in the Mayo Clinic, I was struck with the fact that the gross evidence of myocardial change had been noted in 71% of all cases of goitre. But when we turn to the miscroscope, evidence of myocardial damage occurs practically in every case.

"Histologically, the chief changes are shown in the myocardium in the very intense fatty degeneration of the fibers.

"This predilection of the toxin for muscle tissue is shown also in the marked evidence of weakness of the skeletal muscles. This is shown in the weakness in raising the feet to go up stairs. It is shown also in a very frequent evident weakness of the intercostals and in the apparent weakness of the diaphragm—as exhibited in the hurried shallow respirations of patients with exophthalmic goitre. It is probable also that one of the two large factors in the production of exophthalmos itself is the weakness and relaxation of the recti muscles of the eye."

Now the purpose of this paper is not to enumerate the above trite points for the mere joy of appearing before this august body, but of late we have seen so many cases of incipient goitres diagnosed as nervous affection and uterine or ovarian disease and treated over a long period as such that we deem it extremely important to keep the subject before the profession and iterate and reiterate the findings of the masters that the percentage of hyperthyroid cases which have undergone irreparable tissue change might grow less.

Treatment, in a word, is of course surgical, with four distinctive and pronounced contra-indications.

First.—It is unwise to operate too early following an exacerbation of symptoms for the procedure will precipitate an attack and the convalescence will be necessarily stormy if not more serious.

Second.—Goitres of adolescence in girls are not surgical, the symptoms usually righting themselves as other endocrine glands adjust themselves to sex changes.

Third.—The exophthalmic goitres of the aged—say after fifty—offer little at times in results, the concomitant tissue changes above enumerated having gone too far to promise relief commensurate with the dangers incurred by operation.

Fourth.—When the blood pressure shows a wide constant difference in systolic and diastolic pressure, with an apex beat one inch to the inner border of the nipple line, demonstrating a heart dilatation with failure of compensation.

THE REMOVAL OF MORBID FEARS AND SIMILAR BESETMENTS: THE PRINCIPLES IN SOME ILLUSTRATIVE CASES.*

By TOM A. WILLIAMS, M. B., C. M., Washington, D. C.
Lecturer on Nervous and Mental Diseases at Howard University; Neurologist, etc. to Freedman's Hospital, Washington, D. C.

Corresp. Member, Neurol. Soc. of Paris.

The fundamental difference between the two types of phobias, those rapidly curable, and those that cannot be cured, is that in the latter we find an emotional predisposition of the patient inherent in the constitution of his organism which compels him to react unteleologically to circumstances which the average man deals with without serious perturbation. This is an incurable type and resembles, in its clinical aspect, an exhaustion psychosis, so much so that to the condition has been given, by one writer, the name of "Psychasthenia." All that can be done to alleviate his lot is to choose an environment for the patient and to teach him to avoid what tends to augment his emotivity.

Very different is the genesis and mechanism of the type of phobia which is so readily removable by present psychotherapeutic methods. The origin of the morbid symptoms can be found by an intelligent anamnesis. They do not proceed from an inherent emotional in-

*This communication was first made in French by request before the Neurological Society of Paris, 1918. A translation at much greater length appears in International Clinics, 1919, Vol. IV, under the title "Differentia regarding Obsessions and Phobias," where the case histories are related in full along with others and a theoretical discussion.

stability. The discovery of the mechanism of origin of the particular phobia is an important element in enabling the patient to comprehend the real nature of his condition. It is only when this is understood that he is able to view his reactions rationally, almost impersonally. He learns to see in what way they have occurred, and is thereby enabled to forestall them. He learns to view a situation scientifically, whereupon the morbid affect, which it has formerly aroused, ceases.

It is essential to change the subject's notion as to the meaning of the situation which provokes emotion. The emotion cannot be changed until the subject envisages the situation differently.

Janet long ago outlined the principle of substitution in the removal of hysterical ideas, and the same principle has been set forth under the name of "The Setting of Ideas" by Morton Prince.

This method is essentially very different from the former methods by which these patients were treated, such as by emphasizing the lack of gravity of the phobia, by ridiculing it, by attempting to distract the patient in occupations or recreations, by hypnotism, isolation or rest-cures. These methods, so far from being beneficial, are harmful, and none of them aims at the cause of the condition, as all medical art should.

The ESSENTIAL CAUSE OF PHOBIAS of this type is a CONDITIONING OF THE AFFECTIVE REACTION toward a given situation BECAUSE OF A MISTAKEN NOTION REGARDING IT.

It is by the use of the principle of re-association and substitution, performed, however, with the deliberate understanding of the patient, that we effect the disappearance of phobic reactions to environment. The following cases are illustrative:

Agoraphobia Combined With Claustrophobia Removed In One Week.*

A graduate of thirty-three consulted me because, having frequent attacks of what she feared was heart disease, she was unable, without an intense emotional disturbance, to remain in a church or theater or, unless accompanied, to cross a street. I found no physical disease, the only signs present being those of hyperthyroidism.

The first attack had occurred eight years before, on a very warm day, in a poorly ventilated church, when she became very ill and not wishing to create a disturbance, forced herself to remain, though the compulsion to leave the church was intense.

The diagnosis was that the agoraphobia and claustrophobia were hysterical in origin, arising from the powerful suggestion of the recollection of a particular experience, made efficacious now only by the timorous imagination of the patient. The hyperthyroidism was considered as secondary and relief of the chronic emotional strain was believed sufficient to cure this. Then this agoraphobia and claustrophobia having been traced to a single incident upon which they were dependent, were removed in less than a week by efforts directed towards giving the patient an understanding of their mechanism, compelling her to grasp it and then compelling her to take an exercise which afforded a practical demonstration. She remains well three years later.

*Dr. Reichelderfer.

Soidisant Pantophobia With Bad Heredity, In Reality Produced By Faulty Treatment In Infancy, Cured By Re-educative Psychotherapy.

A professional man, twenty-eight years old, became beset by nameless fears, so that he finally withdrew himself from all society and friends, and finally made two attempts at suicide. He feared he must be a physical degenerate and thought heredity was the cause. "cures" having failed. I discovered that he had had a near relative who was a believer in the hardening process for the development of the physical and moral welfare of youth and who had manifested this by resorting to many irrational procedures which had produced in him a chronic fear. I first explained to him that his cowardice was a psychic and not an instinctive habit, and then re-education consisted of a reconstruction of the fear situation of his infancy, and of an insistence upon the possibility of a readjustment of his reactions towards himself and the world. After a short time, he obtained control of his fear and has since married and led an active professional life for a year.

Phobia of the Dark Removed by Re-educative Persuasion After Short Isolation.*

A girl of sixteen years would frequently

*Dr. Litchefield, Pittsburgh.

wake in the night, very much afraid unless soothed by someone sleeping with her. She had been much spoiled, owing to a supposed weak heart, and had always been considered delicate. Inquiry showed she had been told by a servant, when a small child, terrifying stories —stories which had left their horror upon her. Fears were of fires and burglars and appeared only at night.

She was given literature about the psychology of fear, and what she could not understand was explained to her. Then she was given exercises in mental concentration and was urged to apply them to the study of her own feelings of nocturnal apprehension; urged to grasp the fact that the fear and shame of her fears prevented her from facing and examining them, which was most essential. Cured in a month. She has been well for eight years.

Obsession of Inferiority Leading to Four Attempts at Suicide. Cured by Re-educative Persuasion Without Isolation.*

A farmer's son, twenty-two years old, having made four attempts at suicide, was brought to me. Examination showed no physical disorders, but a serious psychological situation.

He had the management of his mother's farm: but, through the interference of a younger brother with his plans, and the meddling of neighbors, acquiesced in by his mother, the situation became intolerable to him. He was very shy, especially in the presence of girls, was teased by other boys, and was most ashamed of a mental inferiority which he feared had been caused by his own onanism. Confessing that if he could be cured of this he would be glad to live and work, he was given assurances and asked to think them over, meanwhile promising not to commit suicide. Discussions were resumed the next day and in ten days he returned home in good spirits to go to work. He remained well years later.

The Prevention of Phobias in Infancy.

For several weeks, a little boy aged three years and nine months, had daily been visiting the zoological garden in company with a French maid of exceptionally forceful character. One night he began to cry, a most unusual occurrence—soon after he was left alone, as he feared there were lions in the house. It appeared that he had been much impressed, although unterrified, by the fact that the lions had roared more loudly than usual that day. He was assured in an affectionate manner that the lions must stay in their cages, and that therefore there could be none in the house. Then the situation was passed off in a joking, happy manner, the boy's sense of security regained, and the state of terror at once dismissed.

Medical Suggestion as Cause of Disease.

Some varieties of phobia arise from suggestions of medical origin; and, in many instances, morbid fears are maintained by the attitude of medical men of whom advice is sought. The neurologist who sees these mismanaged cases has to studiously avoid any procedures which may seem to the patient to maintain attention upon the organ concerning the function of which the phobias exist.

In case* where fear of loss of sight had accompanied a ptosis of psychogenetic mechanism, the condition had been greatly aggravated by the frequent repetition of examinations, ophthalmological, neuropsychiatrical, medical, otological, serological, endocrinological, none of which had sufficed to ascertain the genesis of the tic. This was readily done by an intelligent anamnesis in conjunction with a study of the actual character of the ptosis.

It was necessary to sedulously avoid even examining the patient after the first diagnosis. Visits were studiously neglected as a means of persuasion that there was no condition demanding surgical or medical procedure, and the taking of these precautions enabled a cure to be obtained in a few weeks.

Pantophobia.

In persons suffering with pantophobia, there is a profound disturbance of the physical organism, usually toxic, or at least, chemical in kind. It is merely a state of painful affectivity, due either to an erythism of the central apparatus, or caused by an excitation of the peripheral receptors.

French psychiatrists have long supposed these situated around the great viscera. They have believed that disorders of this kind are cenesthopathias. Protopathic sensibility is the name given to a similar concept by other clinicians. More recently the excitation of these receptors has been connected with modifications of the internal secretions. In turn, endocrine disturbances are traced to excitations

*Dr. A. B. Hove.

*Dr. Hagner.

and inhibitions of the vegetative nervous apparatus.

Nowadays the inductions of visceral neurology are influencing a good deal of clinical investigation tending in the direction of chemistry through the theory of the hormone.

Cenesthopathic disturbances not only produce local discomfort but strongly influence the personality and consciousness of the sufferer; they often cause sensations of strangeness to the patient's selfhood and so sometimes engender the fear that the patient is losing his mind. The best way of getting rid of this fear is to ignore it and deal with the mechanism of which it is an indication.

With cenesthopathic sensations of physical origin, medical means must be sought. Surgical measures are to be avoided; for, in true cases the sensation persists in spite of the operation. Psychic means, of course, are inefficacious against organic sensations of physical origin.

1621 *Connecticut Avenue.*

Correspondence

Nursing in Virginia.

March 29th, 1920.

To the Editor:

In the March issue of the Virginia Medical Monthly, I note with pleasure that the Memorial Hospital is again contemplating the Eight Hour System for all students in training, and expects to perfect arrangements in order to start same on April 1st. I desire to say most emphatically, however, that the Memorial Hospital is not the first to establish this plan, as there are several hospitals in the state who are now on the complete Eight Hour System for all pupil nurses and several have always had an Eight Hour System for all students on day duty. The Memorial Hospital had the latter plan (eight hours for day pupils) from the third year of its existence, but went back to the ten hour day plan when the present administration took charge.

No one doubts that the Eight Hour Plan for students in training is desirable and all energies of the Virginia State League of Nursing Education will be concentrated in the coming year to have this system in all training schools; however, it must come as an educational advancement, not as a statute, as was recently attempted in the Virginia Legislature by request of Wise County Medical Association.

Mr. Morlok also states in the communication above referred to that he will establish the Eight Hour Plan for "graduates as well as pupils." He will possibly be one of the first to adopt this plan (if consummated), but the National League of Nursing Education does not especially advocate this. With the present shortage of graduate nurses the plan would not be feasible, as the Eight Hour System for students means better work in every way, which calls for more accurate supervision on the part of the graduates forming the Nursing Staff of any hospital. If, however, a hospital can afford an Eight Hour Day for its graduates, there is no reason why head-nurses and supervisors should not share in the benefit of the Eight Hour Day, but it must not be given at the sacrifice of Training School Supervision or Efficiency of Hospitals. The long hours of duty have been one of the causes of the present shortage of applicants in the Training Schools and all schools are awakening to this fact.

The Virginia State League of Nursing Education congratulates the Memorial Hospital for "falling in line" and feels assured that better work will be accomplished, as statistics and reports from other hospitals will prove.

I trust this article will arouse other hospitals not having the Eight Hour System to "about face" and "fall in."

Rose Zimmer VanVort.
President Virginia State League of Nursing Education.

Richmond.

Country Practice.

March, 27, 1920.

To the Editor:

In regard to the dearth of physicians in rural districts I feel prompted to speak, as I practiced in the country for several years and enjoyed it.

The chief reason for emigrating to the city is bad roads. A country doctor looks forward with dread to the winter months when he will have to abandon his car and hitch old Dobbin to the chaise and then plod through mud up to the axles. The only cure for this evil is the Good Roads movement.

The smallness of fees is another drawback. While the country doctor has not as heavy expenses as his city friend, ten dollars is not com-

mensurate with his labor in an obstetrical case, etc., *ad libitum.*

Another fact is that his patients are not educated to laboratory diagnoses, etc., and, if he makes these necessary tests, his patients think he is just "running up the bill." In regard to obstetrical cases, the same thing holds. While we all know that the expectant mother should be under careful observation for at least six months, the country people think this is all bosh.

Country practice could be made more attractive than a city practice if these obstacles could be gradually overcome by educating the public. Incidentally, if country physicians would stand together in the matter of fees and not try to cut each others' throats, it would work out to a mutual advantage.

Dr. Gibson's suggestion, made in the March issue of the Monthly, of having the state train a certain number of men in the profession and have them practice in the country for a limited time is a very timely one.

Norfolk, Va. H. C. Grant.

Proceedings of Societies.

MEDICAL SOCIETY OF VIGINIA.

Report of Legislative Committee.

It will be interesting to the medical profession of the State to know what legislative matters were passed during the last session of the legislature, relative to the medical profession and health matters in general.

During the first three weeks of the meeting of the legislature, it was impossible for me to be around the legistlative halls, owing to a severe epidemic of influenza and pneumonia. It was during this time that the homeopaths introduced a bill amending the medical laws of the State regarding the examination of applicants for the practice of medicine. A representative of the homeopathic profession called on Dr. Ennion G. Williams and gave him a typewritten copy of the proposed amendment, stating to Dr. Williams that the object of the amendment was only to allow the homeopaths to rate their own schools, that being the only change in the bill. In the typewritten copy they had this change indicated by a line drawn under the words showing the change. There were no other changes underscored. Dr. Williams sent me the copy.

On receiving the copy I went to Richmond at once, and went before a meeting of the Medical Society of Richmond, with the said typewritten copy of the bill and, after explaining why the bill was being introduced and the effect the change would have upon the standing of the medical profession, the Society went into the discussion of the matter and passed a resolution going on record as opposing any change in the original medical law. At this time the bill had already been reported out of the Senate Committee. I saw the chairman of the committee, Senator West, and asked that the bill be referred back to the committee that I might be heard in opposition to same. This was done. I appeared before the committee and explained to them that the medical profession was not making a fight on the homeopaths, but that the profession thought it unwise to make any change whatever in the present medical laws; that the rating of the schools had been satisfactory to all concerned; that at present the State of Virginia maintained as high standard for the medical profession as any State in the Union; and that I did not think it wise to interfere with our present standing. The bill was again reported out favorably. Two days afterwards, Dr. Ennion Williams called me over 'phone, and said that the sentiment was very strong in favor of the bill, and that the mere allowing the homeopaths to rate their own schools was not of itself objectionable, and he thought it advisable that I would withdraw the objection to the bill. I authorized him to withdraw the objection, and the bill passed the Senate unanimously.

A few days later we discovered that the bill not only made a change in the medical law as indicated above, but also cut out Section "D" of the medical law, which was really the only part of the medical law that fixed a real standing. I at once got in communication with Dr. Bolling Jones and Dr. Preston, and had them meet me in conference with Drs. Prince and Henning of the House and Senate. At this conference, we agreed to allow the bill to pass without objection provided Section "D" was re-instated as in the original bill. This was accomplished, and the bill passed with the change allowing the homeopaths to rate their own schools, and the American Medi-

cal Association to rate the allopathic schools. We were misled as to the contents of the bill introduced by the homeopaths in-so-far as the change in Section "D." This change was never mentioned, nor did any of the advocates of the bill ever indicate that there was the slightest change in the bill other than providing that the homeopaths and allopaths rate their own schools, respectively. May I say here that Dr. Bolling Jones, a member of the Legislative Committee, Dr. J. W. Preston, Dr. Ennion G. Williams, and Doctors Prince and Henning of the House and Senate, rendered valuable assistance in preventing the passage of the original bill as presented by the homeopaths, which bill would have been very disastrous to the medical profession of the State, and to the people at large.

There were a number of other matters that came up for consideration, which were eliminated or adjusted. Among these was a bill introduced by Senator Deal, of Norfolk, permitting a man by the name of Baldwin to practice drugless methods of healing in Virginia. This bill was defeated.

Other bills in which the State Board of Health is interested and in which the medical profession is also vitally interested were passed. Among these was a bill for the control and prevention of venereal diseases. This bill is perhaps the most drastic bill ever passed by a Virginia legislature relative to the prevention of diseases. While this bill may seem to a large number of doctors very drastic, yet it is the only way to ever hope to get much result in the treatment and prevention of these diseases, and I hope and feel sure that the medical profession will give every assistance possible in the enforcement of the law.

Another important health measure passed was, that providing for public health nursing, health examination, and physical education of school children. This is a very progressive step, and one which means much to the future citizenship of our State. The medical profession will gladly render all assistance possible in the execution of this law.

A bill appropriating $30,000 to purchase a building suitable for an orthopedic hospital for the treatment of crippled and deformed children was passed by the Legislature, but afterwards vetoed by the Governor because it would mean multiplication of units doing the same work, as the Dooley Hospital is being used for the same class of work. The orthopedic work for crippled children of the State is very much needed and will, no doubt, be enlarged on by the next Legislature. The Governor's vetoing the bill is in keeping with his progressive and economic ideas.

There was a resolution passed by both houses authorizing the State Board of Medical Examiners to investigate the situation relative to the number of physicians, the distribution and proper qualification of those who are practicing medicine in the State, and report its findings and such recommendations as it may deem advisable as to how best meet the needs of all the people of the State, to the Governor, to be by him transmitted to the General Assembly at its next session. This resolution was introduced at the request of Dr. Ennion Williams, State Health Commissioner, with the hope of being able to find some way or means by which the shortage of doctors in the State can be overcome.

I believe that there was more constructive medical and health legislation passed at the recent legislature than has been passed for a number of years. The health measures, championed by Dr. Ennion G. Williams, State Health Commissioner, if properly enforced, will prove a great asset to future generations.

I submit the above report that the doctors of the State may have knowledge of what took place during the recent session of the legislature.

Respectfully,
H. U. Stephenson, Chairman,
Legislative Committee.

Public Health Department

In the Tuberculosis Field.

Completion this month at Charlottesville of Blue Ridge Sanatorium marks another step ahead in the Virginia campaign against tuberculosis and serves to call anew to the attention of doctors throughout the state the general tuberculosis situation and the program of the board of health.

The State Health Commissioner has estimated, as readers of the Virginia Medical Monthly know, that there are annually more than 4,000 deaths from tuberculosis in Virginia: and this mortality pre-supposes at least five active cases for each death, thus giv-

ing Virginia more than 20,000 active cases of tuberculosis with an unending chain of new infection and continuing spread of a disease which constitutes today, as it has throughout medical history, the greatest single health problem with which organized society has to deal.

Most health authorities who have studied the tuberculosis question are agreed that an approximation of hospitalization for the tuberculosis needs of a community requires at least one bed for each annual death, since most cases are in bed or should be in bed the last 12 months of the patient's illness. This would put Virginia's minimum requirements in this respect at 4,000 beds.

The state is still wofully short of this number of beds for tuberculosis patients. Nearly all the available beds for tuberculosis in Virginia are under the supervision and management of the board of health and the total number is short of 500, excluding beds in one private sanatorium and two sanatoria operated by municipal or other local agencies, which have a total of less than 100 beds. It will be seen at once that there are facilities for hospitalization of less than 600 patients in the state and simple subtraction will show that about 3,400 last stage cases must be cared for in their homes, under the control of home health authorities and under the direction of the home doctor.

Thus a situation exists which brings personal responsibility to Virginia doctors and gives interest to a discussion in some detail of the work at the state sanatoria, which have been doing for the past decade a work certainly as important in an educational way as in the curative field.

Virginia's first venture in the establishment of sanatoria for treatment of pulmonary tuberculosis was the enactment of legislation providing for Catawba Sanatorium, which was opened ten years ago. It was a modest beginning. There were thirty patients, in two wooden shacks; under the care of one physician and three nurses.

Since that beginning, more than 3600 patients have been given treatment at Catawba. The last patient admitted at the close of the year ending September 30, 1919, was 3443. Today there are 264 patients in the Sanatorium, as compared to the thirty with whom it began operation; a medical staff of five is in service; and a nursing force of 20 is enrolled, in a training school from which are graduated annually young women who are giving faithful and loyal service. The sanatorium plant has been enlarged from the two original shacks until it includes now more than 20 buildings.

A reference to curative benefits following sanatorium care may be of interest. Catawba records show that, during the last twelve months covered by statistical summaries, 734 patients received treatment at this institution. According to classification with reference to the stages of the disease; 86.61 per cent of the incipient cases were improved on discharge; 81.11 per cent of the moderately advanced cases were improved on discharge and 62.32 per cent of the far advanced cases were benefited by their sanatorium stay. Less than 25 per cent of the total number of patients treated, including all three stages of the disease, failed to receive benefit from sanatorium care.

These figures do not, of course, take into account the benefits accruing to the state through the education of patients in disease prevention, a phase of sanatorium work difficult to weigh accurately, but, where effective, of inestimable value. All possible emphasis is placed on this part of the work. A regularly scheduled course of lectures on disease prevention is a part of the sanatorium routine; lectures not only on tuberculosis prevention, but on general health topics. We believe sick people are good health missionaries; a sick person has a direct and personal interest in carrying to well members of the family any message worth while in health maintenance. The sick person knows by bitter experience the value of what he or she has learned.

The importance of the work at Catawba was demonstrated by results had there. The state health commissioner realized the necessity of work of this character among the colored residents of Virginia and the next institutional development under his auspices was the inauguration of an 80-bed sanatorium at Burkeville, for colored patients. This sanatorium, to which was given the name of Piedmont, has at its head Dr. H. G. Carter, who, as medical superintendent, is doing excellent work in this branch of the tuberculosis field. Recently a school of instruction in diagnosis was held at Piedmont Sanatorium for colored doctors. There was gratifying attendance and a very fine degree of interest shown by more than 30 colored doctors who went from all sections of

the state to attend the clinics and lectures over which some of the state's best tuberculosis men presided.

Blue Ridge Sanatorium at Charlottesville, which opened in April, for the treatment of white residents of the state, has a capacity of 125 beds. Dr. Walter C. Klotz, just home from service in France with the International Tuberculosis Commission, has taken up the duties of medical superintendent at Blue Ridge, which, through its admirable location and connection with the State University, promises enhanced value to the public health program.

These are the three state owned sanatoria for tuberculosis. At Salem, Va., Dr. E. E. Watson has a private sanatorium with a capacity of about 60 patients; at Danville, maintained in part by the city and in part by local health agencies, there is a 40-bed sanatorium; and at Richmond, Pine Camp Sanatorium is an excellent institution for residents of that city. There is a tuberculosis ward in the Lynchburg Hospital.

Application blanks for the state sanatoria may be had on request directed to the resident physician at each institution. Rates at Catawba are $5 a week and at Charlottesville have not been determined yet; at Burkeville rates are $2.50 a week.

It has seemed appropriate, in opening this department of the VIRGINIA MEDICAL MONTHLY to discuss the equipment available in the way of sanatoria for the treatment of tuberculosis in the state. It is desired that all physicians should feel that it will be a pleasure if the writer may be of any possible service in any question arising with reference to tuberculosis.

B. L. TALIAFERRO.

Analyses, Selections, Etc.

The Significance of Phylogenetic and Ontogenetic Studies for the Neuropathologist.*

Dr. B. Brouwer says that if there is one part of the body of vertebrate animals, in which the great line, going upwards, in the direction of man can be seen, it is the nervous system. The great mass of facts, which has been collected of late years by the workers in the comparative anatomy of the central system, has gradually convinced neuropathologists, that an exact knowledge of the relations in lower animals has also an important value for the insight into the morphology and the physiology of the human system.

In studying a case of multiple sclerosis he asks the following questions after accepting the view of the infective origin of the disease: Why could not the patient speak correctly? The knee reflex has a communication with the forebrain and why does this reflex not disappear with the same regularity as the abdominal reflex, when there are so many sclerotic foci in the thoracic and lumbar part of the spinal cord? Why is the nystagmus only a horizontal one, and why is this horizontal nystagmus, obtained by moving the eyes sideways, so frequent in multiple sclerosis? How should such a contrast between the motor and sensory disturbance be explained? Why does the temporal half of the disk become pale?

He answers these questions by saying that these systems have little resistance because:

1st. In regard to speech.—Phonation is a very high function, which appears only late in phylogenesis as well as in ontogenesis.

2nd. In regard to the abdominal reflex in comparison to the knee jerk.—The abdominal reflex only occurs in primates, while the knee reflexes on the other side are found in several lower mammals. The abdominal reflexes appear late in ontogenesis. The knee reflex is already present at birth, but the abdominal reflex does not appear until at the age of some months.

3rd. In regard to nystagmus.—We can understand this fact, when we consider that the sidewards movement of both eyes at the same time in the horizontal plane is a function which is only present in higher mammals, where the eyes are placed more in the front of the head and where the structure of the face makes it possible that such a function has acquired a great significance.

4th. In regard to motor and sensory disturbance.—The paresis is the consequence of the damage to the pyramidal tracts. These are phylogenetically and ontogenetically young, especially the part for the legs, and we can understand that this function suffers frequently and early.

As far as sensibility is concerned the systems for conducting the touch, pain, heat and cold stimuli must be organized in the lower

*Phylogenesis—the development of an organism or any organic type; the life history of an organism or a series of organisms. Ontogenesis—the development of the individual organism or ovum.

animals almost in the same manner as in man. The stereognostic and discriminating sensibility on the other hand are recent perfections of the nervous system.

5th. In regard to pallor of the temporal halves of the disks.—In non-mammals the optic nerves are crossed totally. In mammals they cross partially. In mammals, where the eyes are standing far sideways, the number of the direct fibres is small. In animals, where the eyes are placed more in the front of the head, the number of the direct fibres is greater. They acquire the largest number in primates, especially in man. The non-crossing fibres are lying in the temporal half of the optic disk. Here also the fibres of the fovea bundle are located, which bundle is well developed on primates only.

Although the pathological process in multiple sclerosis is irregularly spread through the peripheral optic system, only the temporal half of the disk becomes pale. This is explained by the fact that this is the phylogenetically younger part of the disk.

There are always several causes acting together in pathological conditions: viz., heredity, specific affinity of the noxious agents to definite parts of the central nervous system, the difference of the "portes d'entre", the different intensity of the providing bloodvessels, etc. Yet Starcke remarked how the process of the poliomyelitis acuta anterior attacks by preference the cervical and lumbar enlargements. Paralysis of the trunk-muscles is very seldom seen. The pathologic anatomy of this disease has also taught that the alterations in the thoracic part of the spinal cord are by far less intensive and less frequent than in the cervical and especially than in the lumbar enlargement. The muscles of the trunk and their cells in the cornus anterius of the spinal cord have undergone in the phylogenesis almost no differentiation. The muscles of the extremities on the contrary show a great development and variation in the evolution, especially those of the legs, which must be accompanied by great alterations in the cell-groups of the spinal cord. Assuming a special preference of the noxious agents of poliomyelitis acuta anterior for the grey matter, it is thus in the light of evolution clear why these parts of the spinal cord are more especially attacked.—*The Journal of Nervous and Mental Disease, February,* 1920.

On a Possible Significance of the Babinski and Other Pathologic Reflexes.

E. D. Friedman, Instructor in Neuropathology at the University and Bellevue Hospital Medical College, states that the Babinski toe phenomenon is looked upon as a pathognomonic sign of organic lesion of the pyramidal tract, or its point of origin. There are normal individuals who do not respond to stroking of the sole of the foot as the great majority of people do with plantar flexion of the toes, but show a more or less definite flexion of the great toe either alone or in conjunction with a similar movement of the other toes. But this response is usaully much more swift and inconstant. This pseudo Babinski is especially common in the neuropathic, in ductless gland disease and other degenerative conditions.

Simultaneously with the dorsal movement of the great toe there is a contraction of the tensor fasciae femoris (Brissaud, Marie Foix) and of the ham string muscles (Walshe). There is also frequently a fan-shaped spreading of the toes seen especially in the infantile hemiplegias.

The Babinski phenomenon also occurs in the first stage of narcosis, in post-epileptic states, and in uremia.

The Babinski reflex has no pathological significance in children under one year of age.

He then goes on to suggest that the Babinski and similar reflexes may be an expression of atavism in view of the fact that the corticospinal system is the last to develop and is not even myelinated till after birth and that in event of an insult to this system the human animal reverts back to his primitive state of monkeyism. The monkey climbs with the great toe and thumb extended and the other toes and fingers flexed, and he thinks that this may be a phylogenetic reversion to this posture. He supports this view with the claims of Brouwer that in certain lesions of the cortical nervous system the hitherto unexplained selection of location may be accounted for by the selection of nuclei which enervate poorly developed muscles in the monkey and thus because of their biological underdevelopment have a greater vulnerability. In this way he attempts to account for nystagmus, speech disturbance and pallor of the temporal halves of the disks in the multiple sclerosis.—*Journal of Nervous and Mental Disease, February,* 1920.

The Truth About Medicines

New and Non-Official Remedies.

Pasteur Anti-Rabic Vaccine (Gilliland).—An anti-rabic vaccine (see New and Non-official Remedies, 1920, p. 272) prepared according to the method of the U. S. Public Health Service. The treatment consists of twenty-one to twenty-four doses and these are sent separately each day by special delivery. The Gilliland Laboratories, Ambler, Pa.

Pneumococcus Vaccine Immunizing (Gilliland).—A pneumococcus vaccine (see New and Non-official Remedies, 1920, p. 286) containing Types I, II and III, respectively, in equal proportions. Marketed in packages of four 1 Cc. syringes and also in packages of four 1 Cc. ampules containing 250, 500, 1,000 and 2,000 million killed pneumococci per Cc. The Gilliland Laboratories, Ambler, Pa.

Staphylococcus Vaccine (Albus and Aureus) (Gilliland).—A staphylococcus vaccine (see New and Non-official Remedies, 1920, p. 288) containing **Staphylococcus albus** and **Staphylococcus aureus** in equal proportions. It is marketed in packages of four syringes containing, respectively, 250, 500, 1,000 and 2,000 million killed bacteria in 1 Cc.; also marketed in packages of four ampules containing, respectively, 250, 500, 1,000 and 2,000 million killed bacteria in 1 Cc. The Gilliland Laboratories, Ambler, Pa. (Journal A. M. A., Feb. 7, 1920, p. 393).

Chloroxyl. — Cinchophen Hydrochloride. — Phenylcinchoninic Acid Hydrochloride.—The actions, uses and dosage are the same as those of cinchophen (see New and Non-official Remedies, 1920, p. 224 under Phenylcinchoninic Acid (Cinchophen) and Phenylcinchoninic Acid Derivatives.) Chloroxyl is a yellow crystalline powder with an astringent, slightly bitter taste, insoluble in water. Chloroxyl is also supplied in the form of Chloroxyl Tablets 5 grains. Eli Lilly and Co., Indianapolis, Ind. (Jour. A. M. A., Feb. 14, 1920, p. 461).

Propaganda For Reform.

Grale's Fruit Laxative.—This is advertised with the claim: "Grale's Fruit Laxative contains only figs, dates, raisins and prunes, a few simple herbs and bran. NO DRUGS AT ALL". Though claimed to contain no drug, the A. M. A. Chemical Laboratory reports that the preparation was found to contain ground senna. Since senna is a well-known drug of recognized activity, the claim that the preparation contains no drug is false. (Jour. A. M. A., Feb. 7, 1920, p. 410).

Dionol—The Glorified Petrolatum.—The exploitation of Dionol is based on the theory: (1) The brain is a generator of neuro-electricity; (2) The nerves are the conductors of this electricity; (3) The nerve sheaths are the insulators; (4) Wherever there is local inflammation, the nerves are short circuited owing to a breaking down of the insulation resistance of the nerve sheaths; (5) This results in "an escape of neuro-electricity"; (6) Dionol coats the nerve sheaths with a non-conducting layer, and this restores the insulation and "stops the leak". Whether this theory was invented to give a "reason for being" for Dionol, or whether Dionol was first invented and it became necessary to evolve a theory that would give some plausibility to the claims made for this etherealized petrolatum, we are unable to say. In any case, the theory and the product are exploited together. The value of the "case reports" sent out for Dionol may be estimated from a report featured under the heading "Infected Wound . . ." signed "Dr. W." This "Dr." appears to be an osteopath whose specialty, according to his advertisement in his local newspaper, is "Catarrhal Deafness and Hay Fever, Acute and Chronic Diseases." (Jour. A. M. A., Feb. 7, 1920, p. 410).

Hypno-Bromic Compound.—A Vermont physician reports that Hypno-Bromic Compound, manufactured by H. K. Wampole and Co., is sold by druggists without prescription, though it contains in each ounce: cannabis indica, 1 grain; morphine, ¼ grain; potassium bromid, 48 grains; hyoscyamus, 1 grain; chloral hydrate, 96 grains. He writes that he has three young women who have become addicts to the preparation as a result of thoughtless prescriptions from physicians. By visiting the various drugstores in town, these addicts have been able to obtain an ample supply of the preparation. Hypno-Bromic Compound is more than an unscientific mixture; it is a dangerous product that should not be sold indiscriminately over the drug counter. Physicians who prescribe such mixtures and druggists who indiscriminately sell such stuff are disgracing two honorable professions. (Jour. A. M. A., Feb. 7, 1920, p. 410).

Eupad and Eusol.—Eupad is a powder composed of equal parts by weight of boric acid and chlorinated lime (containing 25 per cent available chlorin). Eusol is thus made: (a) 25 gm. of eupad are shaken with 1 liter of water, allowed to stand for some hours and filtered. (2) To 1 liter of water add 12.5 gm. chlorinated lime (25 per cent chlorin), shake vigorously, and add 12.5 gm. boric acid in powder and shake again. Allow to stand, decant and filter. If the official chlorinated lime containing 30 per cent available chlorin is used, a proportionately smaller quantity should be sufficient. (Jour. A. M. A., Feb. 7, 1920, p. 413).

Influenza Vaccines. — The Medico-Military Review, a semi-monthly mimeographed publication sent to medical officers of the Army by the Surgeon-General's Office, has the following on the use of vaccines against influenza: "**You Are Reminded** that so far a comprehensive analysis of results obtained by the use of monovalent and polyvalent vaccines in the prevention of influenza has not demonstrated their value. Much carefully controlled experimental work is now being carried out on this subject both in civil institutions and in the Army, and any worthwhile advances will be reported in the **Review** from time to time. If a prospective vaccine is developed, it will be prepared at the Army Medical School for general distribution and all medical officers will be duly notified. The general use of the present commercial polyvalent protective against influenza is not considered desirable. Numerous telegrams and other requisitions are being received for influenza vaccine. In view of the fact that no prophylactic influenza vaccine is available, such requisitions should be discontinued." (Jour. A. M. A., Feb. 14, 1920, p. 466).

Auto-Hemic Serum.—This is an asserted cure for laziness, ugliness, frigidity and many other things. For many years L. D. Rogers, the discoverer of Auto-Hemic Serum, was the chief owner of the National Medical University of Chicago—a low grade school of the "sun-down" variety now out of existence. A few years ago, Rogers was exploiting a cancer serum and selling shares in the "Cancer Research Laboratory and Hospital." In 1915, he exploited a Japanese consumption cure. Then came Auto-Hemic Serum, exploited by means of "The National Society of Auto-Hemic Practitioners" and the "North American

Journal of Homeopathy," the official organ of the "Auto-Hemic Practitioners" and of the "American Medical Union." Auto-Hemic Therapy is described as "The Missing Link in Medicine" and "consists in giving the patient a solution made by attenuating, hemolizing, incuhating and potentizing a few drops of his or her own hlood and administering it according to a refined technic developed hy the author." The "technic" of this new therapy may be learned through a mail order course costing one hundred dollars, "cash-in-advance." One of the chief virtues for the serum is that of developing in the patient who takes it an unbounded energy; it apparently makes him want to work himself to death. (Jour. A. M. A., Feh. 14, 1920, p. 477).

Eumictine.—The Council on Pharmacy and Chemistry reports that Eumictine is ineligible for New and Non-official Remedies because (1) it is unscientific; (2) it is sold under unwarranted therapeutic claims; (3) the name "Eumictine" is blown in the hottle for the ohvious purpose of hringing the product to the attention of the public when it is prescribed in the original package, and (4) the name is therapeutically suggestive and not in any way descriptive of its composition. Eumictine is a preparation from the laboratories of Maurice Le Prince, Paris, France. and is marketed in this country by George J. Wallau, Inc., New York. According to the American agent, "each capsule is supposed to contain 20 centigrams of Santalol, 5 centigrams of Hexamethylene-Tetramine." (Jour. A. M. A., Feb. 21, 1920, p. 542).

Du Pont Cotton Process Ether. — Recently the "News Service" of the E. I. Du Pont De Nemours and Co., Inc., circularized the press of the country with a "filler" ahout "The New Du Pont Ether." The Du Pont Ether and the claims made for it are seemingly based on the work of one man, James H. Cotton, M. A., M. D., Toronto, Canada, who published an article on "Cotton Process Ether and Ether Analgesia." However, Cotton did not give the composition of the "New" ether, nor does his work appear to have been corrohorated. In reply to an inquiry from the Secretary of the Council of Pharmacy and Chemistry, the Du Pont Chemical Works declared that the "procedure of manufacture, and the exact composition" of the ether was regarded as confidential information. The use of a therapeutic agent of unknown composition is unscientific and contrary to the best interests of the medical profession and the public, but it is many times more serious for physicians to use a secret or semisecret substance as an anesthetic.

Barbital (Veronal) Addiction.—The constant use of even small doses of barbital (veronal) affects the central nervous system. Those taking the drug habitually become much debilitated and seem less able to stand moderate doses. Death has occurred from a 3 gm. dose in addicts. (Jour. A. M. A., Feh. 21, 1920, p. 544).

Antiplasma.—A nostrum called Antiplasma or Rudolph's Malarial Specific is being exploited in the South. It is claimed that the preparation was "developed by J. J. Rudolph, M. D." and that "There is only one way to cure Malarial Fever. Take 15 drops of Rudolph's Malarial Specific on sugar or in molasses, three times daily for six days." The A. M. A. Chemical Laboratory reports that Antiplasma is a pale yellow, viscid liquid having an odor resembling a mixture of oil of turpentine and oil of wintergreen. The preparation responded to tests for rosin, turpentine and methyl salicylate. It was impossible to determine whether the product was a mixture of the three, or some natural turpentine-like product "thinned" with methyl salicylate. The chemists conclude that a mixture of 53 parts of hleached rosin, 41 parts of oil of turpentine and 6 parts of methyl salicylate would probably have whatever anti-malarial properties Antiplasma possesses. (Jour. A. M. A., Feb. 28, 1920, p. 618).

Pharmacy by Act of Congress.—For years the manufacturers of "patent medicines" have assured us that the alcohol in their nostrums was used only as a solvent, preservative or extractive agent. Thus Wine of Cardui at one time contained 20 per cent of alcohol and the manufacturer claimed that no more was used than was needed as a solvent and preservative, and that attempts to substitute another preservative had proved futile. Then came national prohibition and now Wine of Cardui contains 10 per cent of alcohol and its preservative powers have been fortified hy the addition of benzoates. (Jour. A. M. A., Feb. 28, 1920, p. 607).

Book Announcements

Cerebrospinal Fluid In Health and Disease. By ABRAHAM LEVINSON, B. S., M. D., Associate in Pediatrics, Northwestern University Medical School. With a foreword by LUDVIG HEKTOEN, M. D., St. Louis. C. V. Mosby Company, 1919. 231 pages with 56 illustrations, including 5 color plates. 8vo. Cloth. Price $3.

Levinson's Cerebrospinal Fluid in Health and Disease is, indeed, a considerable addition to the text-book literature on this subject. The author's own evident personal work in this field gives to the little book a note of authority. Not only so, but he also presents in very readable form the investigations and studies of others. This he does in historical sequence, thus leading one through the stages of our knowledge of cerebrospinal fluid in health and disease.

The importance of the subject is obvious. This fluid bathes and influences the physiologic action of the brain and spinal cord. Its study necessarily leads to evidence of the state of the brain and spinal cord. It is clearer than blood, bile and urine, and so the slightest change in its color, increase of its protein, or cell count, indicates pathologic states in the cerebrospinal system.

This book should be particularly useful to the busy practitioner because in its pages he finds in a few hours' reading a wealth of facts and knowledge which, if sought in literature at large, would mean days of search and labor. The author clearly presents essentials in the history of cerebrospinal fluid, its anatomy and physiology; the methods of obtaining the fluid from the living body, noting the untoward effects, describing technique of lumbar puncture,

the needle, reasons for failure, the pressure, etc. The author gives in detail the properties of normal cerebrospinal fluid, the amount, its color, its pressure, specific gravity, chemical composition, physio-chemical properties, etc. He gives in clear manner the known significance of pathologic cerebrospinal fluid; its increase in amount, pressure, form, cells, pellicle, crystallization, protein, precipitation, sugar, turbidity. Its reactions are described, the colloidal gold, mastic, Ninhydrin reaction. Its bacteriology, its immunology and its agglutination are also presented, while the Wassermann reaction is also described.

The author in the last two chapters briefly discusses cerebrospinal fluid in various diseases, and the treatment of meningitis, meningococcic, pneumococcic and tuberculous poliomyelitis, chorea, tetanus and cerebrospinal syphilis.

The book is well printed—good paper and type. It is a useful book and a busy doctor can hardly more wisely spend his time than in reading it.

The Medical Clinics of North America. Volume III, Number 3 (THE MAYO NUMBER, November, 1919), and Volume III, Number 4 (THE BOSTON NUMBER, January, 1920). Philadelphia and London. W. B. Saunders Company. Octavo. Published bi-monthly. Price per year: Paper, $12.00; cloth, $16.00.

These Clinics are so well known and appreciated by those who are acquainted with them, that it seems only necessary to announce their appearance.

The Mayo Clinic Number contains 296 pages with 79 illustrations, and the Boston Number, 316 pages with 43 illustrations. The papers compiling these two numbers are interesting discussions of a variety of subjects.

Food for the Sick and the Well. How to Select It and How to Cook It. By MARGARET J. THOMPSON, R. N. Yonkers-on-Hudson, New York. World Book Company. 1920. Small 12 mo. IX and 82 pages. Cloth. Price $1.

This little book, which is well indexed, has been written by a registered nurse who has had years of experience in the care and feeding of the sick. She has combined her knowledge of dietetics with comon sense and has made a practical book which should appeal to, and be of value to the nurse, the housewife, and to the physician in that he can feel safe in recommending it to those in charge of the sick. A few pages are also give under the head of "Treatment" which should be helpful to the untrained attendant in the sick-room.

Epidemics and How to Meet Them. Contributed and edited by LOUIS A. HANSEN, GEORGE H. HEALD, M. D., DANEL H. KRESS, M. D., WELLS A. RUBLE, M. D., and MARTIN M. MARTINSON, M D. Review and Herald Publishing Assoc'ation. Washington, D. C., New York City and South Bend, Ind. 1919. 12 mo. Paper, 128 pages. Price, 25 cents.

Henry Mills Hurd. The First Superintendent of Johns Hopkins Hospital. By THOMAS STEPHEN CULLEN. The Johns Hopkins Press. Baltimore, 1920. 12 mo. 147 pages. Cloth. Price, $1.50.

This book recounts the life and work of possibly one of the best known hospital superintendents and hospital organizers in the United States. It contains several illustrations and "Some Random Recollections" written by Dr. Hurd himself, which will prove of interest to his many friends. It but adds to the honor which has been paid to a man who is to be memorialized by the erection on the hospital grounds of the Henry M. Hurd Library Building.

Diseases of Nutrition and Infant Feeding. By JOHN LOVETT MORSE, A. M., M. D., Professor of Pediatrics, Harvard Medical School, and FRITZ B. TALBOT, A. B., M. D., Instructor in Pediatrics, Harvard Medical School. Second Edition. Revised. New York. The Macmillan Company. 1920. Octavo. Cloth. 384 pages.

Orthopedic and Reconstruction Surgery. Industrial and Civilian. By FRED H. ALBEE, M. D., F. A. C. S., Professor and Director of Department of Orthopedic Surgery, New York Post-Graduate Medical School and at University of Vermont. Philadelphia and London. W. B. Saunders Company. 1919. 8 vo. 1138 pages with 804 illustration. Cloth. $11 net.

Bad Teeth Large Factor in Causing Insanity.

Dr. Henry A. Cotton, medical director of the New Jersey State Hospital for Insane, in his annual report, stated that bad teeth were the cause of many cases of insanity coming under observation in that institution last year. He expressed the opinion that dentists should remove infected teeth instead of trying to save them through mechanical dentistry.

To the extraction of infected teeth, as well as to operations on the tonsils and other organs, Dr. Cotton attributed his success in being able to discharge 274 out of the 410 cases entering the hospital during the year.

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ALEX. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
BEVERLEY R. TUCKER, M. D., Richmond, Va.
PAUL W. HOWLE, M. D., Richmond, Va.
EDWIN L. KENDIG, M. D., Victoria, Va.
ALFRED L. GRAY, M. D., Richmond, Va.

EDITOR
ALEX. G. BROWN, Jr., M. D.
G. H. WINFREY, Business Manager.

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Editorial

The Doctor In Politics.

"The physician is the flower (such as it is) of our civilization; and when that stage of man is done with, and only remembered to be marvelled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race." (Robert Louis Stevenson).

This editorial is not intended to cover any comment upon the doctor-politician seeking office. When a physician takes time from his professional service and devotes it to the politics of his town, county or state, with the sole end in view of seeking for himself some political office for its power or its salary, or both. it is extremely doubtful whether he is following a wise course. At least, it is not of this type or of this relationship to politics that this comment is intended to draw attention.

It is all too well known that the doctors of this state have never taken active or broad interest in the political problems of the state. Lawyers, as is well known, occupy just the opposite position. The state, the county and the township would be better were it true that physicians took a livelier interest in political questions. Busy with many details concerned in the welfare of the individual patients that begin with the morning of each day to claim his attention, the busy and influential doctor does not have the time or the inclination to busy himself about other matters than those relating to professional duties. The whole tendency of the medical duties is to throw a wall around the physician which isolates him from the public or political life of his community.

But this tendency or trend of life should be overcome. The physician should, in a proper manner, take an active interest in political matters of state, county and community government. He should be interested in the personnel of the administrators of the government. No government can be administered fairly and advantageously when the officers are wanting in high qualities of mind and morality. The machinery of government should be placed in the hands of responsible and conscientious administrators or else the public welfare and public trusts necessarily suffer. So, in choosing the public officer the doctor should take a lively interest; not for personal favor, but for public welfare. No safer plan offers itself than that the physician put forth his influence to bring out as candidates for public office and for representatives in legislative bodies men who meet high standards of mind and morality required by the public needs, both moral and scientific.

In every community there are forces, constantly and unremittingly at work in the political field, which have for their object purely selfish ends. These forces should be fought by the physician. In the conduct of town and city affairs touching upon the health and welfare of life and body of the people, the physician should give intelligent, direct and effective effort in the political field, looking to betterment and improvement of political factors.

A lay editor has recently so well commented upon Sir Auckland Geddes' contribution on this subject to the Osler memorial volume, although in a more national sense, that his words are used herewith exactly:

"In the volumes of biologic essays prepared by Sir William Osler's fellow-physicians to celebrate his seventieth birthday, which lamentably appear rather as a memorial, the new British Ambassador presents certain reflections upon the medical profession which are as stimulating and suggestive as they are courteously phrased. More than any other of the great professions, Sir Auckland Geddes says, physicians lack 'the spirit of citizenship,' the willingness 'to bear their share of the burden of Government.' Their devotion to science and to the service of individual healing is paramount; they do not conceive of these things in their relation to the nation. 'I have heard teachers

in the medical schools say that their whole duty to their students was to teach them to prevent disease, to treat the sick and to understand the method of science.' Sir Auckland denies this, though to do so 'seems to me, in my purely scientific moods, almost discreditable.'

"The forces which determine national progress, and with which a statesman is primarily obliged to grapple, are not recognized in any science to which the physician is trained. They are the forces of 'mass emotion'—the largely blind, inarticulate and groping, yet supreme and indomitable, forces of the racial genius. Just at present these are forces with which the physician, if he could only recognize the fact, is peculiarly qualified to deal—'an emotion of human betterment, finding expression in centres for child welfare, in schemes for housing the working classes, in the establishment of Ministries of Health, of Reconstruction and Research, in the growth of the Labor Party, in the spread of Socialism, and, incongruous though it may seem, in Bolshevism and in the great ideal struggle to express itself through the League of Nations.' In brief, 'we are at this moment in the power of a world-wide emotional storm, the full effects of which are not yet manifest,' but which will centre in the betterment of the nations' health and of the more purely human relationships. Meantime the medical profession, 'with brilliant exceptions,' is composed of men who are 'immature as citizens' and whose citizenship, such as it is, 'is as divorced from their technical knowledge as is the citizenship of the speculative builder when he jerry-builds new slums.' The world is 'moving on to the greatest of its revolutions,' but the majority of physicians, 'who might be its far-seeing leaders,' are 'blind and babbling of industrial unrest.'

* * * *

"We have heard much of Sir Auckland's stature of six-feet-two and of his herculean shoulders, of his possession of 'one of the three or four best brains in Britain,' and of its life-long training in the laboratory. In the ponderous 'Contributions to Medical and Biological Research Dedicated to Sir William Osler,' he appears a being altogether human."

PHYSICIANS!

"Pray to the Gods, also, for a fair measure of the love of science, a good memory, a quiet manner, the accurate use of your hands and your senses, and the necessity of making money. Pray even for opposites; for humility and pride, for plodding business-ways and for the wings of ambition, for a will both stubborn and flexible; and, above all, for that one gift which has been the making of the best men in our profession, the grace of simplicity of purpose." (The Spirit of Practice, in Confessio Medici.)

The Battle of Proteins.*

The human body is a protein mass, living, growing, reproducing. This animal body is attacked by many diseases. These diseases represent some injury in the body or some deviation from the normal in its functional operations. The origin of these diseases which battle with man is not thoroughly or logically classified, but there is a large group of diseases most common in man which produce great and rapid destruction, in some instances, and which pass from man to man using man as host. This group is referred to as infections and these diseases are caused by bacteria, protozoa, spirochetes, animal parasites and filterable viruses. These are living, animate causes of disease in man and produce, when in sufficient number, definite diseases, exhibiting selective pathology. One-half of all the diseases of man and one-half of all deaths are caused by these animate proteins. Really, most happily, it may be observed it is in this field,—the diagnosis, prevention and cure of infectious diseases,—that the science of medicine has made its greatest progress and has proven its greatest worth.

These diseases of man are due to "foreign animate proteins" and from them the body possesses certain known means of defense which it automatically brings into play. We will comment very briefly on this point. Upon the introduction into the animal body of the protoplasm of any foreign cell, vegetable or animal, at once is set up in that body forces of defense called antibodies. Only proteins are capable of producing such antibodies and, so far as known, all proteins are antigenic in the animal body provided they are in a colloidal and soluble state. It is the specific reaction of each antigen and its antibody that explains the group of symptoms and reactions caused by pathogenic bacteria which, entering the body and selecting certain tissues, set up characteristic reactions or symptoms. This defense phenomena is shown also in the resistance of the body against re-infection when once the tissues have been sensitized by disease

*See: Mechanism of Bodily Resistance to Disease.—Gay, F. P.—Oxford Medicine, Vol. I.

processes against this particular foreign microorganism.

There are several types of resistance or immunities to infectious diseases. The "riddle of tissue differences" is great and we understand it only in part. There are certain diseases of bacterial origin to which man is not susceptible and certain to which man is susceptible while other animals are not. This is known as a species immunity. Cold-blooded animals are not susceptible to infections of warm-blooded animals. Man's measles, scarlet fever, gonorrhea, syphilis and typhoid fever do not occur spontaneously in other animals. To these diseases man's protein-mass is susceptible and to them man's body reacts.

Then, there is what is known as a natural immunity—another riddle in the battle of proteins. Why should certain persons, although exposed to infections, never contract them? Why is it that in certain ages of life in man, certain diseases are unknown or rare, while in other periods they are common?

The initial line of defense of the body against bacterial invasion is found in the skin, epithelial cells, action of gastric and intestinal fluids, in the difficulty which certain bacteria find in becoming implanted in certain select tissues on account of inaccessibility. After the external barriers are overcome, the phagocytes attack the invading bacteria and this factor is important as the second means of defense. Our author well states this in the following words: "On this supposition as to the operation of natural resistance and natural immunity, we realize that any natural process of intervention that raises the number of leucocytes either generally, or locally at the point of infection, and any intervention that increases the alexic power in the leucocytes or in the blood serum, increases resistance. Conversely, any process that lowers these substances will lower resistance. Numerous observations tend to confirm this provision. In the first place, it is well known that when an infection begins a marked local reaction and particularly one evidenced by the presence of leucocytes tends to prevent the further extension of the infectious process. Localized hyperemia and venous stasis, as in the Bier treatment, which tend to facilitate diapedesis of white blood cells in an infected region, aid in aborting infections. Hyperleucocytosis itself is not only a concomitant of many infections diseases but is of prognostic import (e. g. pneumonia). The injection of leucocytic extract (Hiss and Zinsser) aids in curing localized infections. The effectiveness of the leucocytic extract is not due, we believe, as the originators once thought, to the alexins in the leucocytes administered, but rather to the stimulation of the leucocytes in the host which is brought about by the leucocytes simply because they are foreign proteins. We shall later have occasion to discuss the value of various foreign proteins in combating generalized infections such as arthritis and typhoid fever. Any substance, either Buchner's plasmin, a preparation of nuclein, typhoid vaccine, or albumose, may produce beneficial results.

"Conversely, normal resistance may be lowered by numerous conditions which we suspect or actually know to have an effect upon the leucocytes or alexins. Thus, general lowered conditions of and social surroundings may be accomplished by a diminution in these essential factors. London showed that starving animals have less alexin than normal. Moro demonstrated similar results in bottle-fed infants. It should be stated, however, that most of the methods of determining the potency of the alexin in serum have been technically imperfect (Gay and Ayer). On the other hand, it seems definitely demonstrated that fatigue, cold, various chemical poisons, such as anesthetics, opium, phosphorus, and alcohol, all have harmful effects on the leucocytes."

Safeguard Your Dollars For Old Age.

The Virginia Medical Monthly is glad to call attention of the doctors of Virginia to our new feature in advertising. The advertisements of financial institutions in our journal point to a side of the physician's career which, by a large percentage of active practitioners, has been greatly and lamentably neglected. It has been commonly said that doctors are easy victims for the "gold brick" man or the "mining" or "oil stock" promoter. Many a doctor has been brought to financial ruin and poverty in old age by yielding to the persuasion of some such visiting solicitor.

Heed the advice of a group of successful financiers:

"There is a seed time and harvest in money matters. The money you have saved is good seed which you have bought by hard

work. Sow where it will grow and bring you a return: mortgages."

"First Mortgage Bonds are Safe Bonds that do not Fluctuate."

"Municipal Bonds are particularly attractive at this time because of their freedom from income tax, their absolute security and great stability from investment worry. Municipal Bonds are readily converted if necessary."

"Offers Maximum Safety: It is an established fact that conservatively negotiated First Mortgage Real Estate Bonds rank high among investments."

"Six per cent Farm Mortgages are taken by banks and insurance companies."

"If you would be wealthy, think of saving as well as getting."—Franklin.

"Saving should be more than the accumulation of money. It should include the use of money saved to add to the total; in other words, investment. Reckless investment is speculation, but careful investment is the best form of saving: First Mortgage Notes."

"An unusual combination of circumstances today presents the most remarkable opportunity in fifty years for making money conservatively."—Babson.

"Conditions which in no way reflect any change in their intrinsic worth have resulted in lower market prices for Liberty Bonds which make them an unprecedented investment bargain."

Spending and Saving.

"The dollar you spend buys less food, less clothing, less of everything than formerly, but the dollar you save buys more: More bonds, more income, than ever. When commodity prices decline, as they must, income will buy more, so that a return of six per cent today may increase in buying power 50% to 100% when prices go back to normal. Save your money now: it will buy more later."

"A safeguard for your dollars is found deep in the foundation of a city's preferred apartment, mercantile and factory buildings: First Mortgage Real Estate Bonds."

"Buying now for permanent investment: The wise investor will grasp the present opportunity to secure high grade municipal bonds at attractive prices: exempt from all Federal ncome taxes."

The Hospital.

It is a good omen for the public when steps as outlined below are taken by the American College of Surgeons to establish a minimum standard of hospital efficiency in this country.

Hospitals recognized by the organization must conform to the following:

1. That physicians and surgeons privileged to practice in the hospital be organized as a definite group or staff. Such organization has nothing to do with the question as to whether the hospital is "open" or "closed," nor need it affect the various existing types of staff organization. The word staff is here defined as the group of doctors who practice in the hospital inclusive of all groups such as the "regular staff," the "visiting staff," and the "associate staff."

2. That membership upon the staff be restricted to physicians and surgeons who are (a) competent in their respective fields and (b) worthy in character and in matters of professional ethics: that in this latter connection the practice of the division of fees, under any guise whatever, be prohibited.

3. That the staff initiate and, with the approval of the governing board of the hospital, adopt rules, regulations, and policies governing the professional work of the hospital: that these rules, regulations, and policies specifically provide:

(a) That staff meetings be held at least once each month. (In large hospitals the departments may choose to meet separately.)

(b) That the staff review and analyze at regular intervals the clinical experience of the staff in the various departments of the hospital, such as medicine, surgery, and obstetrics; the clinical records of patients, free and pay, to be the basis for such review and analyses.

4. That accurate and complete case records be written for all patients and filed in an accessible manner in the hospital, a complete case record being one, except in an emergency, which includes the personal history; the physical examination, with clinical, pathological, and X-ray findings when indicated; the working diagnosis; the treatment, medical and surgical; the medical progress; the condition on discharge with final diagnosis; and, in case of death, the autopsy findings when available.

5. That clinical laboratory facilities be available for the study, diagnoses, and treatment of patients, these facilities to include at least chemical, bacteriological, serological, histological, radiographic, and fluoroscopic service in charge of trained technicians.

News Notes

Do Movies Hurt The Eyes?

The fact that millions of people go to motion picture shows throughout the United States daily without experiencing any discomfort to their eyes, or that such eye trouble that is found is not traceable to "over indulgence" in the movies, would seem to indicate that motion pictures are not injurious to the vision. It is true, of course, that some people do experience a certain amount of eye strain at a motion picture, but in these cases the trouble appears to be due to an ocular defect rather than to the motion picture. Such persons should therefore have the eyes examined by a competent eye specialist, for it is quite certain that the same person would find even more discomfort in the same period of concentrated reading.

Although no extensive investigations have been made, it may be pointed out that employees of motion picture playhouses, who spend a large part of the day looking at the pictures, do not seem to be more troubled with their eyes than the average individual.

It is safe to say a person may witness a picture play lasting about an hour and a half each day without straining the eyes or experiencing any discomfort, provided the eyes are good and there are no hidden defects to the vision. Indeed it is not unlikely that a motion picture show might be the means of advising one of a faulty vision.

In case of eye trouble coming on after concentrating the eyes on the printed pages of a book for a long period one does not blame the book, but thinks at once of the eyes and the probable need of glasses.

Eye discomfort in the movies should therefore, be regarded as a danger signal and should lead the sufferer to the doctor's office for an examination.

American Medical Association.

The Association wlll convene in New Orleans, La., April 26, for its annual sessions, this being the fourth time it has met in that city. The House of Delegates will convene at 10 A. M., Monday, April 26th, while the scientific sessions will not open until the general meeting on the evening of April 27th. The meeting will be opened under the presidency of Dr. Alexander Lambert, New York, and president-elect, Surgeon General Wm. C. Braisted, U. S. Navy, will be inducted into office.

The following were appointed at the last meeting of the State Socity as delegates from Virginia to the House of Delegates: Drs. Ennion G. Williams, Richmond; Southgate Leigh, Norfolk. and William E. Anderson, Farmville. Alternates are: Drs. C. V. Carrington, Richmond; J. T. Buxton, Newport News, and Geo. A. Stover, South Boston.

The Bureau of Registration will be located in the Josephine Hutchinson Memorial Building, Canal Street, between Villere and Robertson Streets, where a branch post-office will also be established, and early registration is requested. The various entertainments, attractions of the city, and meetings of a number of non-affiliated organizations in the days immediately preceding the scientific meetings of the Association, will add greatly to the interest and pleasure of those attending.

Decennial Pharmacopeial Convention.

The tenth decennial meeting of the U. S. Pharmacopeial Convention has been called for May the 11th at 10 A. M., at Hotel Willard, Washington, D. C. In the interest of the practitioner of medicine, three delegates and three alternates are expected to repesent the Ameican Medical Association, the state medical associations, the medical colleges, and the medical departments of the U. S. Army, Navy, and Public Health Service. The Convention will elect fifty delegates who will constitute a committee on revision, "to which will be assigned the task of determining the general principles to be followed in compiling the tenth revision of the pharmacopeia." Physicians who use drugs in treatment of disease and pharmacologists who study actions of drugs on living organisms should naturally form the larger part of this committee. Virginia is to be represented at this convention by Drs. James H. Smith, Alex. G. Brown, Jr., and C. C. Haskell.

South Piedmont Medical Society.

The semi-annual meeting of this Society will be held in Danville, April 20, at which time an interesting program is planned. A symposium on Gastric and Duodenal Ulcer has been planned as follows:

Etiology and Diagnosis by Dr. Geo. P. Hamner, Lynchburg.

Medical Treatment by Dr. A. G. Brown, Jr., Richmond.

Surgical Treatment by Dr. John W. Carroll. Lynchburg.

X-ray Diagnosis by Dr. Hunter B. Spencer, Lynchburg.

Drs. E. H. Miller and C. T. Carter, both of Danville, have been appointed leaders of the medical and surgical sections, respectively.

Dr. L. A. Robertson, Danville, is president of the Society and Dr. George A. Stover, South Boston, secretary.

The U. S. Civil Service Commission,

Washington, D. C. announces open competitive examinations for physicians, men and women, for Panama Canal Service, at entrance salary of $200 a month with prospect of promotion to higher rates. Applicants must be unmarried, graduates of recognized medical schools whose graduates are eligible for commission in the U. S. Army, and must have had at least one year's postgraduate hospital experience. Applicants should communicate with the above named Commission.

The following examinations will also be held: For inspectors and agents, Antinarcotic Act, May 4, to fill vacancies in Internal Revenue Service of Treasury Department, at entrance salaries of $1,500 to $2,000 a year, with allowance for subsistence and actual necessary traveling expenses when away from post of duty on official business.

For bacteriologist at $130 to $180 a month, and associate bacteriologist at $90 to $130 a month. Appointees will be allowed subsistence, and one room or $15 to $20 a month in lieu of quarters, according to grade and station. Receipt of applications will cease on June 29, 1920.

For medical interne at St. Elizabeths Hospital, Washington, D. C., at $1200 a year and maintenance, and chance for promotion upon examination. Applications for this examination will be received by the U. S. Civil Service Commission, Washington, until the hour of closing business on July 1, 1920.

Men Gained Weight In Army Service.

Statistics derived from physical measurements of 873,159 men show that service in the American army during the world war gave an average increase per man of 3.35 pounds in weight and twenty-three hundredths of an inch in height. The average weight of the men inducted was 141.54 pounds and average height was 67.49 inches. These were increased at time of discharge to 144.89 pounds and 67.72 inches.

One-tenth of an inch in height was lost by American men between the civil war and the world war, the average height at the time of the former war being 67.6 inches.

Dr. William H. Higgins,

Richmond, has returned home after a short stay in Baltimore.

Dr. W. M. Winn,

Of Mecklenburg County, Va., was a recent visitor in Richmond.

Dr. W. A. Brumfield,

Director of the bureau of social hygiene of the State Board of Health, spoke in Lexington, Va., last month, to the students of Washington and Lee University and the Virginia Military Institute on social problems.

Ex-Service Men Receive Training While Still In Hospital. All Work Is Done Under Medical Supervision.

Disabled ex-service men now in Public Health Service hospitals or in certain private hospitals and sanatoriums, are receiving training for gainful occupations in vocational schools arranged by the Federal Board for Vocational Education. All work is done under medical supervision and no work undertaken without approval of the medical officer in charge.

Vocational schools are already started in P. H. S. hospitals at Perryville, Md., and Greenville, S. C., and in private sanatoriums at Saranac Lake, N. Y., Rutland, Mass., El Paso, Tex., and Sanatorium N. C. Work will soon be under way at P. H. S. hospitals at East Norfolk, Mass., New Haven, Conn., Alexandria, La., and Biltmore, N. C.

General Horace H. Wood, director general of Soldiers' Homes, has offered the Federal Board available space in all such homes, to be used by men not wholly recovered from disease or disability, and who are eligible for training under the Federal Board. It is understood that these men are not to become permanent members of the homes. The Soldiers' Home at Johnson City, Tenn., will have

the first training class under this new arrangement. These vocational classes will give instruction in elementary subjects, commercial subjects, mechanical drawing, such shop work as the men are able to perform, and Spanish.

For information communicate with Federal Board of Vocational Education, 200 New Jersey Avenue Northwest, Washington, D. C.

Brazil Immune From Influenza This Year.

To the middle of March, Brazil was immune from the epidemic of influenza that visited North America. Rigid quarantine was instituted against ships coming from infected ports and every effort will be made to stamp out the disease in its beginning should it make its appearance.

Delegates To State Democratic Convention.

Dr. William D. Prince, Stony Creek, and Dr. Joel Crawford, Yale, have been elected delegates from Sussex County to the State Democratic Convention in Roanoke, May 19.

University Registrar Retired On Carnegie Fund.

Mr. Howard Winston, who recently resigned as registrar of the University of Virginia after a service of sixteen years, has been presented with a silver loving cup, the gift of the president and faculty of the University. Mr. Winston has been retired on the Carnegie Foundation.

Dr. and Mrs. B. H. B. Hubbard,

Of Whitestone, Va., were recent visitors in Richmond.

Dr. W. Herbert Lewis,

Who was in a Richmond hospital for sometime following an operation for appendicitis, has returned to his home in Lawrenceville, Va.

Mississippi Physicians Cannot Prescribe Whiskey.

Under a ruling announced by the prohibition director after receiving specific instructions from the prohibition commissioner, physicians of Mississippi will not be given Federal permits to prescribe or administer whiskey as medicine.

Dr. Thomas J. Stanley,

Bracket, Va., is planning to construct a home on ground which he purchased at Montpelier, and expects to move to the latter place at an early date.

Sale Of Medicinal Liquors To Be Limited.

Federal prohibition director for Virginia has sent out instructions governing the handling of alcoholic liquors by druggists and physicians under the Volstead act. The limit for all purposes to druggists is 100 gallons every three months. It has been estimated that physicians will not issue more than 100 liquor prescriptions per year in their ordinary practice and prescription blanks to them will be limited.

In Virginia, to April 1, forty druggists had secured permits to dispense liquors and 374 physicians had filed applications for permits to prescribe it.

Dr. W. H. Parker

Was re-elected first vice-president of the Business Men's Association of Church Hill and Fulton, this city, at its annual meeting the middle of March.

Dr. Henry A. Christian,

Of Peter Bent Brigham Hospital, Boston, addressed the Sphex Club, of Lynchburg, Va., Dr. Christian's native home, at its annual meeting the latter part of March. His subject was "The Doctor and the Hospital of To-day in Relation to Medicine of the Present and Future."

The Mary Washington Hospital,

Fredericksburg, Va., by voluntary subscriptions and personal solicitations, has raised money for the purchase of an X-ray machine which will be installed shortly.

Dr. Mary Harley

Has returned to her home at Sweet Briar College, Va., after spending a short time in Baltimore.

Dr. R. C. Fravel,

Richmond, spent a few days with his parents in Woodstock, Va., the latter part of March, while en route to New York City.

Fire At Ohio Hospital.

Eight patients died and two were expected to die as the result of a fire which last month

destroyed one cottage and the dancing pavilion of the Ohio State Hospital for Epileptics, at Gallipolis.

New Assistant Health Officer in Danville.

Dr. Samuel Newman has been appointed assistant health officer of Danville, Va., to succeed Dr. C. C. Merriam who recently resigned to accept a more lucrative position in Beckley, W. Va. Dr. Newman, who was a graduate of the '17 class of University of Virginia and has since served in Baltimore and New York hospitals, will have charge of the government clinic and all laboratory work.

Dr. R. L. Hudnall,

Beverlyville, Va., has been visiting in Baltimore.

Health Committee, Richmond Chamber of Commerce.

At the annual meeting of the Richmond Chamber of Commerce, the following doctors were appointed members of the Health and Sanitation Committee: Dr. Charles R. Robins, chairman, and Drs. A. G. Brown, Clifton M. Miller and W. H. Parker.

Dr. I. Carrington Harrison

Has been re-elected one of the school trustees of Danville, Va., for a term of three years.

Hospital For Colored People In Bristol.

The Mercy Hospital Association of Bristol, Va., has purchased a residence for $10,000, which will be converted into a hospital for the use of the colored people of Sullivan County, Tennessee, and Washington County, Virginia.

Dr. Allen W. Freeman,

Formerly connected with the Virginia Health Department, but now State Health Commissioner of Ohio, was recently in this city on a visit to relatives.

Tuberculosis Clinics In Danville.

During March, a tuberculosis clinic was held for one week in Danville, Va., at which time examinations and treatment were given those who applied, free of charge. Dr. R. W. Garnett, the local health officer, was assisted in this work by Dr. Dean B. Cole, medical director of the Virginia Tuberculosis Association, and Miss Gammon, field director of the Association. An interesting feature of the campaign was a doctors' get-together luncheon, which was held early in the week, and a big rally for the colored people was held later.

Dr. R. W. Garnett,

Health officer of Danville, Va., was elected a member of the recently organized Community Council of that place. The object of this organization is to look after all the charity and social welfare work of that city.

Eighty Per Cent Of Population Has Tuberculosis.

From a survey recently completed by the American Red Cross, it was found that there are 300,000 cases of tuberculosis in Albania. Eighty per cent of the population was infected. What might be termed the fresh air and simple life treatment have been more than offset by insanitary housing conditions and careless habits of eating and drinking.

Dr. W. A. Lucas,

Of Camp Grant, Ill., recently visited his old home in Pulaski, Va.

Dr. J. T. Green,

Recently of Spotsylvania, Va., is now located at Rose Hill, Va.

Dr. Benj. F. Noland,

Leesburg, Va., who represented his district in General Assembly for five regular and three extra sessions, has announced that he will not again stand for election, as three measures for which he was especially working are about to become effective.

Infant Mortality In Rural Districts Due To Lack of Doctors.

Census reports showing a marked increase in infant mortality from premature births and injuries at birth, an investigation was made as to the cause by the Children's Bureau, of the Labor Department. A survey of five widely separated counties in southern and northern sections showed that, owing to bad roads, long distances, and the small number of physicians practicing in these districts, in one of these counties only sixty-eight out of 160 mothers had a physician when their babies were born;

in another, a doctor was in attendance upon only eight mothers out of sixty-six; and in still another, more than two-thirds of the mothers were forced to forego the services of a physician at this time. In five rural communities. investigations showed that ninety-nine out of 162 babies died before they were one month old.

Dr. C. E. Bowles,

Pulaski, Va., was a recent visitor in Hopewell, Va., in which place he formerly practiced.

Dr. and Mrs. F. N. Mallory,

Lawrenceville, Va., were recent visitors in Richmond.

Mr. A. H. Straus,

Who is associated with Dr. E. C. L. Miller in bacteriological work at the Medical College of Virginia, has returned home from a visit to the laboratories of Boston, Albany and New York, where he made a study of the most approved laboratory methods in those cities.

Dr. W. T. Dodd,

Of Chase City, Va., who has been quite sick, is much improved and out again.

To Care For Colored Epileptics.

A colony for the care of colored epileptics and feebleminded is shortly to be established at Central State Hospital, Petersburg, Va. For this purpose, the State Legislature appropriatel $42,000. Three buildings will be erected at first and it is expected that these will be added to within the next few years.

Dr. and Mrs. B. B. Wheeler

Have returned to their home in Clifton Forge, Va.. after a short visit in this city.

Dr. Cullen S. Pitt

Has been elected president of the Commercial League of this city, an organization interested in amateur baseball.

All South Carolina Healers To Stand Examinations.

We note from the daily press that, after a long legislative fight, the South Carolina senate passed a bill which requires all healers to stand medical examination at the hands of the state board of medical examiners. The intent of the bill, as brought out in debate is to require chiropractors to stand medical examinations. An amendment to provide a board of chiropractic examiners, such as some other states have, was lost by a vote of 22 to 12.

Directors Of Bank At Stuart.

Dr. G. T. Divers has been elected president of the Citizens' Bank of Stuart, Va., for which a charter has been obtained and which is expected to be ready for business in the early Fall. He and Dr. L. C. Dickerson, also of Stuart, are members of the directorate of the Bank.

Dr. and Mrs. Stuart McGuire

Have returned to their home in this city after spending sometime in Atlantic City.

Dr. and Mrs. George B. Barrow

Recently returned to their home in Clarksville, Va., from New York City, where Dr. Barrow was making some investigations in clinical and laboratory work. They were also visitors in this city in March.

Series Of Lectures At Medical College of Virginia.

A series of lectures on popular subjects has been commenced at the Medical College of Virginia, Richmond, and will be continued at stated intervals through the session. The first of these was by Dr. Douglas Vander Hoof on April 8, his subject being "Truth and Fiction Concerning Indigestion." Dr. Frederick M. Hodges will speak on April 29th, on "War Wounds as Shown by the X-ray." Dr. Roshier W. Miller will speak later on "When a Drug Fellow Needs a Friend."

Dr. Sidney J. Tabor,

Portsmouth, Va., was a recent visitor in Hopewell, Va., in which place he practiced prior to moving to his present home.

Brain Work Apparently Not Suitable For Women.

According to a statement made by the superintendent of the Glasgow, Scotland, Royal Asylum, insanity is increasing among women now that they are taking a much greater share in the world's work. The strain seems to react mostly on professional women; women of

the working class do not appear so likely to break down. There has been a notable increase in the number of school teachers and students admitted to insane asylums in Great Britain.

Dr. L. A. Thompson

Was recently appointed to be the new governor of the National Soldiers' Home at Hampton, Va., which was reopened for the old soldiers the first of this month, after having been used as a general hospital during the world war.

Dr. John Drake, Jr.,

Of Clarksville, Va., was a recent visitor in Lynchburg, Va., having gone there on business.

Martinsville Hospital Destroyed By Fire.

The Watt Hairston Memorial Hospital, which was a gift to Martisville, Va., and opened about four months ago as a thoroughly equipped and up-to-date hospital, was totally destroyed by fire on the night of March the 6th. There was no loss of life nor personal injury. The loss is estimated at $25,000 with only $5,000 insurance.

Dr. J. J. Hulcher

Was elected exalted ruler of the Richmond Lodge of Elks, No. 45, at the annual meeting of the order early in March.

Dr. Tom A. Williams,

Washington, D. C., who will be among those in attendance at the meeting of the American Medical Association in New Orleans, will, while away, also attend the meetings of the state associations of North Carolina, South Carolina, Alabama, Louisiana, and the Southern Psychological Society. He is on the programs of several of these societies.

Dr. O. A. Ryder,

Formerly of Cambria, Va., upon his return from service in the medical corps of the army, took a special course in pediatrics in New York City. He is at present in Washington, D. C.

Dr. T. B. Weatherly

Has returned to this city after 30 months' service in the medical corps of the U. S. Navy and is located at 11 West Grace Street.

Pathological And Bacteriological Workers Needed By Public Health Service.

The U. S. Public Health Service advises that they are in need of laboratory technicians for bacteriological and clinical work, and particularly need trained medical officers who desire to devote their time chiefly, or exclusively, to pathological and bacteriological work. This should be of especial interest to young doctors completing internship in hospitals and who feel qualified to take entire charge of laboratories operated in connection with hospitals of from two hundred to seven hundred beds.

Address all communications to the Surgeon General, U. S. P. H. S., Marine Hospital Division, Attention Laboratory Section.

Reinstatement Of War Risk Insurance For Ex-Service Men.

Former service men are again reminded that it is possible to have a reinstatement of war risk insurance which may have lapsed or been canceled, or to convert their insurance in cases where it is now in force. If they cannot obtain desired information from some war work bureau in their own communities, they should write directly to the Insurance Division, Bureau of War Risk Insurance, Washington, D. C., furnishing information as to full name and address; rank, rating or grade at time of original application for insurance; army or navy organization at that time; number of insurance certificate or government life insurance policy, if known; army serial number, if in army; date of discharge, if discharged.

Married.

Dr. Jeffrey N. Elder, Hopewell, Va., and Miss Myrle Fagg, Christiansburg, Va., March 9.

Dr. Daniel D. Talley and Miss Anne Hays Myers, both of Richmond, April 29.

The Association Of Military Surgeons Of The U. S.

Will hold their annual meeting at New Orleans, April 22, 23 and 24, under the presidency of Col. Jos. A. Hall, M. C., National Guard, Ohio.

The Medical Society Of The State Of North Carolina

Will convene in Charlotte for its annual meeting on April 20. Dr. Carl V. Reynolds,

Asheville, is president, and Dr. Benj. K. Hays, Oxford, secretary-treasurer.

Influenza Record In Wise County.

A tabulated report from the doctors of the Wise County Medical Society shows that during the month of February they treated 4237 cases of influenza; there were 28 deaths and 13 cases were complicated by empyema. Six hundred and fifty-one of the cases treated had influenza last year.

The Medical Society Of Northern Virginia And District Of Columbia

Will hold its semi-annual meeting in Alexandria, Va., May the 19th. The following is a list of present officers of the Society: President, Dr. S. B. Moore, Alexandria; vice-president, Dr. J. H. Ferguson, Clifton Station, Va.; recording secretary, Dr. W. T. Davis, Washington, D. C.; corresponding secretary, Dr. Jos. D. Rogers, Washington, and treasurer, Dr. Robt. Scott Lamb, Washington.

The American Medical Editors' Association

Will hold its annual meeting in New Orleans April 26 and 27, during the week of the A. M. A. Convention, under the presidency of Dr. Seale Harris, of Birmingham. Headquarters will be at the Grunewald Hotel.

Surgeons-General At Large.

The newly appointed surgeon-general of the U. S. Public Health Service, Dr. Hugh S. Cumming, took office March 10, succeeding Dr. Rupert Blue, whose term of office had expired.

Former Surgeon-General Blue and Senior Surgeon Joseph H. White were the next day nominated to be assistant surgeons-general at large, Public Health Service.

Fight Against Typhus Fever And Bubonic Plague.

Surgeon-General Cumming has recently returned to Washington after a two years' study of the typhus and bubonic plague situation in Central Europe. Prevention of the importation of these two diseases into America, he stated, was one of the gravest problems that now confronts our health officers. Dr. Blue has already gone to England, where he will be America's representative at meetings to be held in London under the direction of allied governments, to devise ways and means of checking the growing epidemics of typhus and bubonic plague which are ravaging Europe. Medical representatives of thirty-seven nations will be in attendance at this conference. Dr. Blue will give especial study to the control of typhus from the standpoint of quarantine.

A new serum, adopted by the Red Cross workers in a Russian district, is said to have reduced motality from typhus fever from 47 to 6%. The death rate among native and Red Cross doctors in the plague stricken countries has been very heavy and in many districts there is a great dearth of doctors.

Dr. Roshier W. Miller,

Richmond, has been elected by the Board of Aldermen and Common Council of this city, as a school trustee for the third district.

Dr. A. L. Winfield,

Of this city, was painfully though not seriously cut about the head, early this month, when his automobile was struck by another and badly damaged.

On Trail Of Yellow Fever Germ.

Dr. Hideyo Noguchi, the accomplished Japanese bacteriologist on the staff of the Rockefeller Institute, with his associate, Dr. Kligler, has gone to Yucatan, at the urgent request of the people and authorities of that stricken region, to study yellow fever. This still ravages certain districts and is a menace to other tropical and semi-tropical countries, including our own southern states and the West Indies.

Freaks Of Influenza.

The records of the Bureau of Health of Richmond showed that a much larger percentage of white people than colored suffered from influenza in the epidemic this year and also that the disease was more prevalent among women than men.

Children's Hospital To Be Opened In Richmond.

The new $55,000 Dooley Hospital, which is to be opened in this city between the middle of April and the first of May as a children's hospital, will be the first hospital in Virginia operated exclusively for children. Forty-two white children can be accommodated in this hospital. That patients may live in the open as much as possible, a large yard at the rear

is being fixed up so that it will act as a kind of open air pavilion.

Health Campaign Started In Albemarle County.

Albemarle County, Va., in March launched a year's intensive health campaign under the direction of Dr. W. S. Keister, of the State Board of Health, but formerly whole time health officer of Wise County, Virginia.

Health Almanac Again.

After missing several years due to pressure of war conditions, the Virginia Health Almanac has again made its appearance. It is attractive as usual and contains much health information and a number of health slogans. As long as the supply lasts, copies will be furnished without charge, upon application to the State Board of Health, 1110 Capitol Street, Richmond.

Dr. A. J. Crowell,

Charlotte, N. C., has been elected a member of the North Carolina State Board of Health to succeed Dr. E. C. Register, deceased.

The American Proctologic Society

Holds its annual meeting in Memphis, Tenn., April 22 and 23 under the presidency of Dr. Collier F. Martin, Philadelphia. Dr. Ralph Jackson, Fall River, Mass., is secretary.

The Red Cross Of Seven Nations Fighting Typhus.

With the response of the Red Cross societies of Belgium and Sweden to the appeal of Poland for aid in her anti-typhus fight, the number of Red Cross societies who are participating in the war on the disease is brought up to seven: The United States, Spain, Rumania, Portugal, France, Sewden, and Belgium.

The report of the medical mission sent by the League of Red Cross Societies to investigate typhus conditions in Poland, dwelt on the inexpediency of isolated action in dealing with the disease, and recommended concerted action. Individual nations are therefore assisting the League in the effort to coordinate the relief activities and thus render them more effective.

The Swedish Red Cross has asked its government for a subsidy of one million crowns to enable it to participate, and fifty cases of dressings have been sent to Warsaw by the Belgian Red Cross, and the dispatch of a party of doctors and nurses is under contemplation.

Obituary Record.

Dr. Donald McPhail,

One of the best known physicians of Southside Virginia, died at a Richmond hospital, March 11, after a long illness, at the age of 65. He had been in bad health about two years. The burial was made near his home, Randolph, Va.

Dr. McPhail, upon completing a course at Hampden-Sidney College, entered the Medical College of Virginia, from which he graduated in 1878. He then went to Edinburgh, Scotland, where he took a special course of study. Since then, he had practiced in Charlotte County. He was a member of the Medical Society of Virginia.

Dr. John D. Blake,

A native of Mathews County, Va., but for many years a resident of Baltimore, Md., died suddenly in his home March 29. He was 65 years of age. He studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1875, and had since made his home in that city. Dr. Blake was for four years health commissioner of Baltimore and was professor of clinical surgery in the University of Maryland Medical School. He is survived by his widow and three sons. The interment was made near his old home in Virginia.

Dr. K. A. J. MacKenzie,

Dean and professor of operative and clinical surgery at the University of Oregon, died at his home in Portland, March 15, as the result of heart disease superinduced by influenza. He was sixty years of age and a native of Manitoba. He is credited with having developed nerve grafting.

Dr. Thomas A. Harris,

A native of Lynchburg, Va., who had made his home in Parkersburg, W. Va., since 1866, died at his home in that place February 29, at the age of 90 years. He was a graduate of the University of Virginia Medical School in 1830 and was an ex-president of the West Virginia Medical Society.

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FRACTURED VERTEBRAE AND REPORT OF CASES.*

By W. L. POWELL, M. D., Roanoke, Va.

Fractured vertebrae are properly classified as those with and those without cord injury. The frequent site is the body of the vertebrae, and the most frequent location is the lower cervical and lower dorsal and upper lumbar regions. Those of the body are produced by hyperflexion and those of the arches by direct violence, and it is in these that we get the larger percentage of cord injuries, the vertebrae above being pushed forward, carrying with them the cord, which is compressed against the upper border of the posterior surface of the body of the vertebrae below. The extent of injury, of course, is dependent upon the amount of displacement.

Pressure of the cord is much more frequent in the cervical than in any other region; the articular processes offer less resistance to displacement than in the lumbar and dorsal. A large number of cases of fractured vertebrae show no sign of injury of cord or its roots. Mr. Pierce Bailey estimates this as one-third of all spinal injuries. Paralytic symptoms may, of course, be present without fracture or evident displacement, either from intra- or extra-dural hemorrhage. By so-called concussion of the cord or its roots, attention is, of course, immediately directed to the probability of a fracture, but those cases which do not show any sign of cord injury are the ones most frequently overlooked and diagnosed and treated as sprains of the back, as in case No. 2, who from a slight fall experienced a crushed fracture of the bodies of the third and fourth lumbar vertebrae with spreading of the bodies. He was not conscious of having sustained a severe injury and continued his work as engineer for two weeks before being forced to stop work on account of pain in the back which was regarded by his attending physician as a sprain. Frequently these cases diagnosed and treated as sprains will develop a well marked kyphosis which first suggests the possibility of a fracture. In the cervical region fractures of the arches are rare. Fracture of the body and dislocation are not uncommon, but are usually fatal, so very few are brought for treatment. Those that survive are usually those of partial dislocation and fracture of the body with only partial separation of one fragment as in the following case:

Case No. 1. J. S., age twenty-eight, cook, A. W. O. L. (absent without leave), returning to Camp, fell from the platform of a moving train and was brought to the Base Hospital,

Case 1.

Camp Sherman, within two hours after the injury. His head was held in a slightly flexed position. He was suffering extreme pain. All the muscles of his neck were rigid, but there was no sign of paralysis. An X-ray taken immediately showed a fracture of the anterior part of the body of the fifth cervical vertebra.

*Read at the fiftieth annual meeting of the Medical Society of Virginia, at Richmond, October 28-31, 1919.

He was put up in a cast extending from the middle of the chest up to the mastoid and inferior maxilla and around the forehead to prevent lateral motion. He was allowed out of bed in forty-eight hours and was very comfortable. Two months later a plaster collar was substituted which he wore for about two weeks. In a communication from this man about one month after discharge, which was four months after injury, he stated that he had suffered no inconvenience, all movements were free and without pain.

In fracture of the cervical region with displacement, those which come to treatment are usually unilateral. Care should be exercised in transporting these patients to avoid further displacement. The deformity is a flexion deformity and any careless handling may cause an increase of this with consequent increase of pressure upon the cord. Some form of collar is most useful to prevent this. Reduction is by traction with lateral flexion to disengage the fragments.

Fractures of the dorsal region, except the last two vertebrae, are comparatively rare, due to the support they receive on either side. Fracture of the arches is always produced by extreme violence. They may be struck from behind causing a fracture of the arches with compression of the cord, but a force sufficient to produce this is usually fatal. In the lumbar region displacement to any great extent is not frequent. The anterior and posterior common ligaments and the attachment of the psoas and the spinal muscles render considerable protection. The canal only contains the corda. It is fracture in this location that most frequently comes to operation, and it is also in this location that fracture is most frequently overlooked. A safe plan is to treat all back injuries as potential fractures until proven otherwise. The treatment in all these fractures is to reduce the deformity as far as possible, place them in a recumbent position, preferably on a Bradford frame, for six weeks to two months, and a proper spinal support should be worn for at least six months. If the fracture is in the cervical or upper dorsal region. proper support and traction should be applied to the head. The following cases were seen in the orthopedic service of the Lewis-Gale Hospital.

Case No. 2. J. W. C., age forty, engineer. On November 16, 1918, the engine pulled loose from the tank and dropped him to the ground. He states that he did not think he was injured to any extent and continued his work until November 30th, when he was forced to stop on account of pain in the back. He remained in bed for five weeks under the care of his physician, who regarded the injury as a sprain, when he was sent to Dr. Armentrout for an X-ray treatment which showed a comminuted fracture of the lower half of the body of the third lumbar vertebra and the upper half of the fourth with spreading of the fragments; no evidence of cord compression at any time. This man was referred to Dr. Graham in Richmond, who applied a spinal support. I did not see him until after this, at which time there was considerable lessening of the lumbar lordosis and a stiff back, but he was fairly comfortable while he wore the support.

Case No. 3. W. E. G., age twenty, iron worker. On March 4, 1919, a heavy piece of steel fell ten or fifteen feet and struck him. He was brought to the Lewis-Gale Hospital immediately, in extreme shock; ruptured diaphragm was found. This case is to be reported by Dr. Gale at this meeting. He was seen by me on March 22nd. Paralysis was present in both legs below the knees and the quadriceps

Case 3.

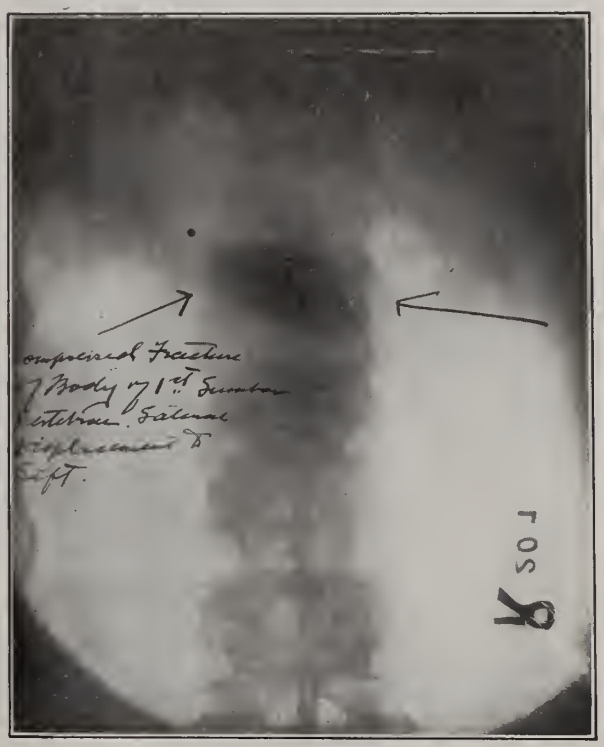
above the knee on the right side, complete foot drop, impaired sensation to touch and temperature also, marked on right side, some pain and tenderness in the lumbar region and the spinous process of the second lumbar vertebra was prominent; plantar and Achilles reflex absent. An X-ray was taken at this time which showed a comminuted fracture of the body of the second lumbar vertebra. The pressure was most marked on the right side. He was placed on a Bradford frame for about six weeks or two months, and later a plaster jacket was applied and he was allowed up. At present motion is practically normal in the left foot and leg. There is still a drop foot on the right side, but there is slight motion voluntarily and the flexors show some reaction to faradism.

Case No. 4. S. M. H., age thirty-two. On August 12, 1919, he fell twenty-five feet from a pole, striking the ground on the lower part of his back, suffering severe pain; did not try to stand. I saw him about ten days after the injury. At this time there was considerable soreness of the lumbar region and marked tenderness over the lower dorsal region. The spinous process of the second lumbar vertebra was prominent, reflexes were exaggerated, no clonus and no disturbance of sensation or sign of cord injury. X-ray showed compression fracture of the second lumbar vertebra.

Case No. 5. W. A. A., August 1, 1918, stepped off his engine to railway bridge, lost his balance and fell about fifteen feet, struck the left thigh and left side of his abdomen; had some pain in the back. He got up with assistance. When he arrived at the hospital his pain was severe in both groins and diagnosed a rupture of the attachments of the abdominal muscles; was in bed three or four weeks, then up. Was seen by me on April 18, 1919, when he had more or less constant pain in the back and was unable to follow his usual occupation. Examination showed a loss of the lumbar lordosis. Flexion was absent from the eight dorsal to the lumbo-sacral articulation. X-ray at this time showed a crushed fracture of the body of the second lumbar vertebra; spinal support applied. When last seen about two months ago, he stated he was fairly comfortable.

Case No. 6. A. W. G., June 21, 1919, fell in front of a level car. The car passed over him rolling him up in a ball, as he expressed it, causing severe pain in the lower dorsal and lower lumbar region. Suffering was extreme. Lumbar muscles were rigid and the slightest movement was impossible. There was marked swelling and tenderness in this region and a slight prominence over the first and second lumbar spine; reflexes normal; no disturbance of sensation. No paralysis. X-ray showed a fracture of the body of the second lumbar vertebra

Case No. 7. J. D. M. On August 28, 1919, was squeezed between two freight cars. Point



Case 7.

of contact right hip and left side of abdomen; was sent to the hospital in extreme shock; had abdominal distention and rigidity and was regarded as an abdominal case for several days. When this condition subsided, X-ray showed fracture of the body of the first lumbar vertebra. No paralysis or disturbance of sensation.

MacBain Building.

The Abbott Laboratories,

Chicago, Ill., have recently purchased twenty-six acres of ground in North Chicago, where they expect to soon commence building an additional plant for the exclusive manufacture of synthetics and other chemicals.

HYDROCHLORIC ACID IN THE SYMPTOMATOLOGY AND IN THE THERAPY OF STOMACH DISEASES.*

By ALEXANDER G. BROWN, Jr., M. D., Richmond, Va.

Physiologists find great interest in discussing hydrochloric acid in gastric juice, not alone because it is found to be an important factor in its action upon both the food and the stomach itself, but also because of the very interesting fact that this mineral acid is secreted in the stomach and that it is the only secretion of the body containing a free acid. It is generally believed that the border cells constitute the acid secreting cells (Howell). As they are located in the middle portion of the stomach, in greatest number, it is here that acidity is greatest. The pylorus and fundus are comparatively free from acid forming cells. Now, since no acid is found in the blood or lymph, it is quite apparent that these specialized cells in gastric mucosa take out of the blood the chloride (probably sodium chloride); and, by breaking up this salt and combining with hydrogen, hydrochloric acid is formed in the stomach. It should be recalled that in the pyloric region of the stomach the pepsin forming glands are located, chiefly.

It is not our purpose to discuss the general subject of gastric functions but to limit ourselves to a comment upon the action of hydrochloric acid as the stomach performs its function. We may first note briefly the action of HCl upon food. Pepsin acts only in hydrochloric acid medium on proteins. The passage of the protein to the peptone under the influence of pepsin, in a hydrochloric acid combination, is a complicated one, but generally this process is said to pass from native protein to acid albumin (syntonin), to primary proteoses (pro albuminoses), to secondary proteoses (dextro-albuminoses), to peptone (all through a process of hydrochloric acid-pepsin action). One should recall that this gastric action upon protein is merely a preliminary step and, as such, serves as a necessary factor in duodenal digestion when the pancreatic juice further acts upon it.

In this connection, experimentation in the field of gastric motility reveals some interesting facts. The usual meal requires some 300 to 400 contractions of the stomach to lift it to, and expel it through, the pyloric outlet. This work is performed by the stomach through several general influences. The chief of these influences is the hydrochloric acid control of the pylorus. The acid chyme of the stomach is thrown through the pylorus into the duodenum and this causes contraction of the pylorus. The pylorus remains closed until the alkaline juice of the duodenum neutralizes the injected stomach juice and, when this is accomplished, the duodenal pylorus again opens. This process goes on constantly until the stomach is practically empty; and when the normal stomach is fasting it remains in a state of recurrent contraction. Hunger is caused by rhythmic contractions of the nearly empty stomach. The stomach is never completely empty. It contains a residuum of 20 to 50 c. c. of hydrochloric acid and pepsin chyme. When the food is swallowed, an increase of flow of gastric juice occurs. Peristaltic contractions are accelerated. The food-chyme, mixed with acid and pepsin, presses from the parsmedia into the pylorus. This makes a constant pressure upon pyloric sphincter.

The nature of the food is a factor entering into this emptying-time of the stomach in addition to the degree of acidity of the chyme poured through the pylorus. The protein influences a slower and more prolonged closure of the pylorus than the carbohydrate diet. It is known, also, that the protein diet is slower to initiate pyloric opening. The protein unites with much of the free HCl; and it excites a larger secretion of HCl and, as a result, tends to delay gastric emptying. Cannon has shown that, at the end of a half hour, eight times as much of carbohydrate is expelled as protein.

There is also a factor acting upon the stomach secretion through nervous innervation. Interpretation of gastric unbalance, through the contrary nervous inhibition of vagotonia and sympathicotonia, is as yet unsatisfactory in practical fields of medicine. However, spasm of the pyloric sphincter, deep spastic contractions of the stomach and temporary hour-glass incisure of the stomach, are muscular disturbances consonant with excessive hydrochloric acid. On the other hand, persistent low state of hydrochloric acidity tends to induce tardy and lazy contractions of the stomach and, further, to favor a patulous pylorus. This latter condition results in premature emptying of imperfectly acidified gastric contents into the duodenum, which in turn sets up serious gas-

*Read at the fiftieth annual meeting of the Medical Society of Virginia, at Richmond, October 28-31, 1919.

trogenic disturbances. As hydrochloric acid serves so important a function, when this acid appears in the stomach in excessive amounts it necessarily sets up gastric symptoms, rather than proper gastric functions. And so this acid juice plays an important role in the symptomatology of gastric dys-function and gastric disease.*

In the light of the foregoing, one's thoughts turn naturally to hyperchlorhydria cases. Hyperchlorhydria is a functional disturbance of the stomach, so called because the gastric juice constantly contains an excess of hydrochloric acid. This disturbance of the stomach-function occurs so often in our patients, setting up subjective symptoms so uniformly characteristic, that it has assumed the importance of a common stomach trouble. It is easily possible that 50% of the stomach cases, excluding those classed as organic, are suffering from an excess of hydrochloric-acid-secretion. One can only think that, in its beginning, hyperchlorhydria is a compensatory secretion which occurs in an effort to automatically overcome some constant over feeding defect, or some continued excess of protein food intake or some nervous or mental habit which retards normal secretion. The clinical evolution of such a dys-function is easily conceivable. The stomach pylorus is in this manner more or less spasmodically obstructed; the discharge of gastric contents is delayed; the hypermotility of the stomach, at first increased, becomes retarded; the food undergoes putrefactive and fermentative changes, the stomach-chamber enlarges, and the patient is penalized by the following train of subjective symptoms: uneasiness one or two hours after eating, distress at the height of the digestive period, pain (pylorosplaasm) varying in intensity and duration, nervousness, melancholia, nausea, loss of appetite or increase of appetite.

In two hundred cases of hyperchlorhydria upon which this phase of the paper is based, morning headache has been frequently noted as a symptom. In these cases gastric analysis shows a total acidity of 60—80. Special care should be given to determine the amount of free hydrochloric acid. Fractional analysis of gastric contents in these cases has thrown new light on the timing of, and degree of acidity-curve, and also given special information in regard to the emptying time. Both of these factors in my experience are of greatest assistance in the interpretation and management of these cases, particularly with reference to the medication and diet.

Also, in cases of chronic catarrhal gastritis the HCl cuvre must be studied because of the therapeutic advantage obtained. Whatever the cause, whether chronic focal infection of the mouth, constant over-eating, passive hyperaemia, diseases of the blood, or what not, the action of the hydrochloric acid secretion is essential to interpretation and management, for upon this, as just said, depends the emptying-time and digestion of the food. Gastric mucus forms as interesting companion-symptom in these cases. While in the early stages of catarrhal-stomach-cases the hydrochloric acid may not be far away from normal, the appearance of mucus is of significance; and while the HCl curve increases in some of the catarrhal cases. the tendency of the hydrochloric acidity is to diminish in direct proportion to the intensity of the pathology. The role of hydrochloric acid in ulcer also is an interesting one. It is not within the scope of this paper to discuss the pathogenesis of ulcer or to advocate the old against the new views of the cause of ulcer and the relation of hydrochloric acid secretion to it. While we know there are found cases of true peptic ulcer with normal hydrochloric acid, the more common experience is to find HCl in excess. It is felt that this excess of free hydrochloric acid adds to the spasm of the pyloric closure and to intensity of the intra-stomach pressure and probably to the degree of pain. So, whether or not medication for gastric ulcer should be based upon alkalization or upon the reduction only of the excess of free hydrochloric acid, is all dependent upon our determining the acidity, its curve of ascent, and its prolongation.

It would seem that, in this connection, a word about the antacid medication in hyperchloric acid cases may be within the intent of this paper. Crohn's paper* assembles a most recent study of the effect of antacid medication on gastric acidity and secretions and so I quote liberally from it and commend his studies to you. The frequency of the hyperchlorhydria-stomach cases, its greater frequency than subacidity cases, makes any study of the adminis-

*The foregoing paragraphs appeared in the Virginia Medical Monthly, August, 1919, as an editorial by the author.

*Crohn: Studies in Fractional Estimation of Gastric Control. A. J. M. Sc. June, 1918, page 801.

tration of antacid a matter of daily and practical interest. It was to neutralize the excess mineral hydrochloric acid secreted that (empirically) it had become the custom to give alkaline salts. Following this time honored custom, stomach patients have been given soda and magnesia. Pawlow and others experimented upon animals, administering saturated solution of sodium bicarbonate with the effort to show the inhibitory effects upon hyperacidity and upon the emptying-time of the stomach. Later the theory that the alkalies exerted an inhibiting action was contradicted by certain clinical observations. Du Mesnil (cited by Crohn) fed a patient increasing doses of soda bicarbonate and found an increasing daily acidity on successive days. Von Leube (cited by Crohn) claimed that soda bicarbonate temporarily neutralizes, but gives rise to secondary stimulation of acid secreting glands. Linoissier and Lemoine (cited by Crohn) held that the immediate effect of soda bicarbonate administration was to excite acidity: if given in small doses temporarily to neutralize, but later to augment HCl; if given in massive doses, neutralization is attained, following which an arrest of hydrochloric acid production may occur but, before the food left the stomach, normal acidity returned. Bourget (cited by Crohn) was convinced that alkalies caused an eventual augmentation rather than diminution of gastric acidity. In view of this divergence of view which is reflected not only by experimentation but also among clinicians, it is interesting to follow the conclusions of Crohn's personal experiments in this field.

His experiments were performed upon 150 secretory or hyper-secretory patients. He found, in his experiments, that soda and magnesia act therapeutically in relatively the same way, both neutralizing acidity the moment of administration: soda bicarbonate acts more quickly but less thoroughly. But, following each, there was a secondary rise in the acid value; with the magnesia the secondary rise exceeded previous acid levels. It can be readily seen how confusion arose when only few observations from test meals were made,—each investigator selecting a different time for testing acidity. Crohn says the practice of giving alkalies in hyperchlorhydria before meals is, in the light of his studies, bad practice, for the meal comes at the period of secondary acid rise. He concludes that alkalies have a proper value as a neutralizing agent if administered properly. This should be after meals. Further, he found that soda bicarbonate in 30 grain doses produced no depression, "in fact produced a rise in average total acidity." However, there was a moderate and physiological temporary neutralization and the secondary rise was not unreasonable. This was true of 30 grains, while 60 grains caused a general depression, but was followed by a secondary hyperacidity which out-weighed its beneficial qualities of neutralization. He observed that 60 grains should not be given in hyperchlorhydria cases except in cases of 90 or more. In the use of magnesia, fractional doses are recommended, the employing of five grains every half hour during the gastric digestion in cases of moderate hyperchlorhydria. In use of large doses of magnesia, 15 grains or more produces an initial depression of an excessive degree depriving the stomach of that normal acid value which is essential to proteolysis and, also, producing a stimulating effect upon the acid secretory cells whereby the secondary acidity creates a greater hyperchlorhydria than the mere food would have done. The prominent thought in the use of such corrective agents of hyperchlorhydria is that the fractional doses of alkalies should be distributed at intervals over the period of gastric digestion with the purpose in view of effecting a physiological state in the stomach. Beneficial for a while, the prolonged and abiding relief must be found in the removal of the causes, and the regulation and management of diet and habits of the patient to meet the limited function of the patient's stomach.

Sample Cases of Hyperchlorhydria.

Case I. A. P. T. (File No. 13170), white, male, aet. 38, tobacconist. Complaint of patient: Nervousness and stomach trouble. For weeks been feeling faint; been having headache; dizziness; has had good appetite; has had eructation; heart burn; and gas in bowels and constipation. Insomnia.

Ewald Test Meal: Fractional samples at 15 min: 4 of free HCl, 43 total; 30 min., 8 free HCl, total 30; 45 min., 30 free, 59 total; 60 min., 33 free, 66 total; 1 hr. 15 min., 53 free, 67 total; 1 hr. 30 min., 62 free, 74 total; 1 hr. 45 min., 62 free, 78 total; in two hours only small amount secured.

This patient was given antacid medication;

astringent bitters before meals; carefully arranged, no stimulating diet. His ugly tymptoms disappeared; he gained 6 pounds in weight in 3 months' treatment.

Case II. D. T. W. (File No. 10936), white, male, aet. 36. Surveyor. Patient's complaint: Distress in stomach after eating. Nausea, sour stomach; dry mouth, coated tongue; relieved by soda.

Test Meal: Sample of gastric chyme taken thirty minutes afterwards showed total acidity of 65, combined 14, free 51.

In this, as in all these stomach cases, careful study of other organs and associated conditions was made. Antacid medication in fractional amounts was prescribed—preceded by bitter astringents, marked improved results.

Case III. Mrs. W. P. (File No. 11714), white, female, aet. 22, married. Patient's complaint: Had indigestion for six years; everything she ate disagreed with her immediately; sour and acid belching is felt and suffered from lump in her throat, but has good appetite. Analysis of sample of gastric contents after a test meal showed: Quantity 87 c. c., free HCl 24, combined 42, total 66.

She had associated conditions which were corrected. Antacid medication with diet were effective in relieving the complaint of the patient.

Case IV. Rev. H. H. S. (File No. 11767). Complaint of patient: been suffering from sour and burning stomach, no nausea but violent stomach noises and pain; saliva flowed from mouth and gas is discharged with noise. Gastric analysis showed in sample of 30 min., 30 free HCl, total 35; one hour and thirty minutes, 48 free HCl, 61 total acidity.

Antacid medication has removed his complaint although indiscretion of diet caused return of symptoms.

Case V. Mr. J. T. B. (File No. 11420), white, male, aet. 28, farmer. Complaint of patient: Stomach trouble for years; operated on for appendicitis in 1904; has poor appetite; sour stomach; gaseous distention of stomach; pain in stomach after eating. Examination of his stomach contents showed a total acidity of 75, with combined 15 and free HCl 60.

In achylia gastrica, indicating an absence of combined or free HCl, along with the gastric ferments, denote the state of relaxed pylorus. In the absence of HCl we infer the emptying is altogether too rapid and that chymification of the food is not completed and that the proper hormone action upon the duodenum, liver and pancreas is wanting. From this the symptoms of anorexia, nausea, vomiting, eructation, pressure over epigastrium, accelerated motility of the stomach and intestines, and gastrogenic diarrhea, make important associate symptoms in the absence of HCl. In subacidity motor insufficiencies of the stomach (cases not falling within the definition of secretory neuroses), the appearance and the degree of hydrochloric acid secretion during the period of gastric digestion must be studied by the physician as well as must be the directing etiologic factors entering into the case. This applies equally in all cases of atony and dilatation. As a physiologic factor in all cases of atonic stomach action and as an indicator of disorder in gastric functions, the low or subhydrochloric acidity merits every interest of the practitioner. As a supplementary acid, in cases of diminution or absence of it, it is important to know when and how much to give to get the results needed. And so one might profitably refer to the studies on this subject which have been recently made by Crohn.*

As we know, no uniform or standard method of acid administration has been generally accepted as to amount needed and the time of administration and frequency of its use. The usual dose of the dilute acid is 5 to 30 minims in water, to be taken immediately after meals. Leo (cited by Crohn) has used equivalent of 75 to 225 minims in a single dose, and, on withdrawing stomach contents during digestion, was able to demonstrate some increase even in the acid titer of the chyme. Ortner (cited by Crohn) feels that it is impossible to administer HCl in suffiicient quantities to leave some free acid in the stomach as gotten in a normal stomach and so he advises 10 to 30 drops of the dilute HCl every ½ hour until digestion is completed. Bourget (cited by Crohn) recommends HCl be administered as a 2% solution giving 100 to 200 c.c. to be taken in small amounts during the gastric digestion. But Crohn, from his experiments, reaches the following conclusions, (1) hydrochloric acid administered therapeutically to the fasting stomach promptly disappears from that organ, the last trace leaving within 25 minutes; (2) HCl administered before a meal exerts no influence on the acid secretion of the subsequent diges-

*Crohn: A. J. M. Sc., Nov., 1918, page 656, Dec., 1917, page 857.

tion period; (3) the therapeutic administration of HCl with a test meal is of advantage for only the first half hour; (4) twenty drops of dilute HCl failed to improve the condition of anacidity when given with a test meal; (5) forty minims of dilute HCl gave a definite though moderate increase of acidity but was limited to a short period directly after taking the medicine; (6) ten minims of dilute HCl administered every half hour was a mild though efficient method of increasing total acidity during digestion but produced no free acid during the period.

In my cases of low HCl, it has been my practice to prescribe HCl in pepsin water given in doses of 10 minims every 15 to 30 minutes during the period of gastric digestion. This general rule is modified to meet varying needs and conditions of the patients. Following, I have selected seven case reports to support this view. In these it was noticed that the careful and periodic administration of HCl in pepsin water, always associated with a careful selected diet, served to relieve the patient of the discomfort of gastric mis-functionation.

Sample Cases of Subacidity.

Case 1. Miss H. (File No. 13314), white, female, aet. 36. Complaint: Nervousness, indigestion, pain and burning in stomach, belching and "egg-breath," feels badly at night; has good appetite.

Gastric fractional analysis: In 30 min., 21 free HCl, 22 combined; 45 min., 10 HCl, combined 10; 60 min., 16 free and 11 combined: stomach empty in one hour and fifteen minutes. Gave 10 minims HCl in pepsin water every half hour until 40 minims were taken. Gave meat and stimulating diet for breakfast and dinner. Patient after one month's treatment reported digestion good and nervousness gone. This was a case of mild subacidity which was headed for serious gastritis.

Case II. Mr. B. H. S. (File No. 12979), white, male, aet. 25. Complaint: Fears, panicky feeling after eating, flushes, goose flesh. Weight 114½ pounds. Fractional gastric analysis: 30 min., 29 free, 37 total; 45 min., 15 free, 22 total; 60 min., 20 free, 40 total; 1 hr. 15 minutes after test meal patient's stomach was empty. Gave patient fractional doses of HCl in pepsin water throughout gastric digestion. Patient improved very well at first and from November, 1918 to May, 1919, with some ups and downs, seemed to be better than he had been for years. He gained in weight and was freer from phobia and nervousness.

Case III. Mrs. P. S. (File No. 13480), white, female, aet. 25. Weight 107 lbs. Complaint: Had stomach trouble for years with distressing nervousness. Periodic attacks of headache every 10 days. Excellent appetite. Analysis of stomach contents showed absence of HCl. This case improved under diet and large hydrochloric fractional doses after eating. Headaches while recurring are less frequent.

Case IV. Subacidity. Mrs. T. S. (File No. 13004), white, female, aet. 25. Complaint: Noisy belching and indigestion. After Ewald test meal, in 45 to 60 minutes the stomach was empty and analysis of extraction at 30 minutes showed 11 total; at 45 min., total 9. Records are incomplete on the case as to stomach function.

Case V. Mr. I. C. S. (File No. 12972), white, male, aet. 48. Merchant. Complaint: Been suffering with indigestion and headache for 20 years, nervousness; renal colic. Gastric analysis: 30 min., free HCl 10, total 48; 60 min., free HCl 8, total 20; 1 hr. 30 min., free 22, total 35; absence of free HCl after that. A complete diagnostic study was made of this patient with Wassermann, X-ray, renal function, etc., which were reported to Dr. Beckwith, of Petersburg. What relief the patient got is not known.

Case VI. Mr. R. L. R. (File No. 13422), white, male, aet. 34. Weight 163 lbs. Height 6 feet. Complaint: Every three weeks stomach goes back on him; suffers with headache; nervousness; depression; feels tense and irritable; sour stomach (excellent appetite). Ewald test meal at 9:45 A. M.: 45 min., free HCl 0, total 9; 60 min., free HCl 0, total 4; 1 hr. 30 min., free HCl 0; total 4. Gave this patient 10 minims of dilute HCl in pepsin water every 15 minutes from the time he finished meals until one hour and a half after meals. Gave stimulating diet of protein and highly seasoned food. His improvement was immediate and complaints disappeared.

Case VII. Mr. E. N. (File No. 11762), white, male, aet. 58. Painter. Complaint: Stomach burning; melancholia; gas distention; loss of weight; appetite good, but afraid to eat. Fractional analysis; 30 minutes, free HCl 10,

total 18; 45 minutes, 15 free HCl, 25 total; 60 minutes, 12 free HCl, 19 total. Gave HCl dilute in small doses during period of gastric digestion; allowed more liberal diet in meats and spiced food. Patient in two months improved greatly losing the ugly symptoms of gastric indigestion and nervous depression, gaining in weight and strength.

1135 *W. Franklin Street.*

Discussion.

Dr. Douglas VanderHoof, Richmond: Very recently we have been tabulating the histories of 2,000 consecutive patients who have been subjected to gastric analysis, and certain practical points have been determined as to the occurrence and symptomatology of achylia gastrica.

In the first place, the interesting fact was determined that one out of every six patients so examined had a complete achylia. The gastric analyses were made by the fractional method, and the 16 per cent. incidence of achylia applies to the whole series, including patients of all ages. Including only those patients who were over fifty years of age, the incidence of achylia gastrica was 30 per cent.

As to the symptoms produced by achylia there is a considerable diversity of opinion. Many so-called stomach specialists pay relatively little attention to achylia. They realize its frequency, but are rather inclined to doubt its significance. Personally, rather extensive experience has convinced me very conclusively that achylia is not only a pathological condition, but that it is followed by a varied train of disturbances and requires very definite treatment. In the first place, one-third of the achylia cases are apt to be troubled with recurring or chronic diarrhea, the so-called gastrogenous diarrhea to which Dr. Brown referred. In fact, achylia gastrica is the commonest cause of chronic or recurring diarrhea. This diarrhea is controlled at once and permanently by the administration of hydrochloric acid.

The second point is that a certain number of these cases, possibly as many as one-third, show a secondary type of anemia. The hemoglobin is frequently below 70 per cent., occasionally as low as 40 or 35 per cent. These cases show no other explanation for the anemia. There has been no loss of blood from the rectum or undue menstrual bleeding, etc. This anemia is relieved following the administration of hydrochloric acid. In addition, we have observed a small series of achylia patients who have subsequently developed typical pernicious anemia.

Now, it must be apparent that food in the stomach containing no hydrochloric acid is not digested. In other words, the pepsin of the stomach requires acid for its activation. In the intestine such food, unprepared by the usual gastric digestion, is very apt to undergo certain changes. We speak of these changes as fermentation or decomposition, and believe that certain toxic substances are produced which in time will cause diarrhea, anemia, weakness, etc. This toxema is relieved by the regular administration of hydrochloric acid.

Occasionally we find a complete achylia in a patient with no gastro-intestinal symptoms. Recently a friend of mine, a great golf player, came to me complaining of "catarrh of the head," which was found to be due to a chronic ethmoiditis. He had no other complaints. He feared that his nasal catarrh came from some stomach condition. At his suggestion, gastric analysis was made and showed a complete achylia. These cases are not very unusual.

Another interesting thing is that seventeen per cent. of our achylia cases complained of discomfort that suggested hyperacidity, and some of these gave an almost typical history of peptic ulcer. The gastric analysis showed complete achylia and the X-ray showed absolutely no evidence of ulcer. The symptoms disappeared immediately and permanently on the administration of hydrochloric acid. In these cases I believe we are dealing with a chronic gastritis, due to the lack of acid in the stomach, and the pain is probably due to the irritation from the undigested food.

Another very interesting point, and a very pertinent one, is that certain of the cases of achylia gastrica show a characteristic appearance of the tongue. The tongue in these cases is absolutely clean, red and bald. This atrophic glossitis would seem to indicate that the achylia is of very long standing and it is these cases, especially, that are most apt to develop either pernicious anemia or pellagra.

In the treatment of achylia gastrica with dilute hydrochloric acid, the ordinary dose of 10 or 15 minims is absolutely inadequate, unless it is given every fifteen minutes or half hour during the gastric process. We always prescribe one teaspoonful of dilute hydrochloric acid in a full glass of water, or, what is much better a glass of buttermilk, with meals; not infrequently, we give it twice, that is one teaspoonful during the meal and one teaspoonful right after the meal. I have an interesting patient who comes to see me twice a year from West Virginia who has had a complete achylia for twelve years at least. She has taken one or two teaspoonfuls of dilute hydrochloric acid with every meal for the last twelve years and remains well.

Dr. Everett E. Watson, Salem: I am very much interested in this subject because in sanatorium work it seems to me that gastro-intestinal upsets cause us more trouble than all other symptoms combined. We must not ignore the autonomic nervous system in these cases. In the majority of our early cases there is a condition of vagus-tonus with hyperacidity, hypermotility, etc. Atropine gr. 1/120 given one-half hour before meals frequently relieves this.

In the advanced case there is usually marked toxemia which centrally stimulates the sympathetics and expresses itself in inhibition of action, with a resulting hypoacidity and hypomotility. I have tried everything for the "dyspepsic" of the old chronic tuberculous patient, and of all the medicines it seems to me that the old-fashioned prescription of hydrochloric acid, pepsin and tincture nux vomica, gives the best results. I have never tried giving hydrochloric acid as suggested by Dr. Brown, but it sounds rational and in the future I will give it in fractional doses during the process of digestion.

Dr. A. G. Brown, closing the discussion, said that in presenting a subject like this, which appeals to us from so many points of view, it is quite difficult for us to confine ourselves to the discussion of the points made in the paper.

My purpose was in the paper to draw attention of the society to the role of hydrochloric acid, whether in excessive or diminished amounts, as an indicator of certain functional stomach disorders and, at the same time, to bring out the most advantageous methods of using it therapeutically for the correction of sub-hydrochloric cases, with symptoms. Also, I wished to show the method of overcoming hyperhydrochloric cases by the use of alkalies.

As Dr. Watson has indicated by his lung cases, functional disturbance of the stomach often occurs from causes in and outside of the stomach which must be considered. I have not attempted to catalogue the causes of these functional disturbances. Of course, the cause of the disturbance in each case should be discovered and removed.

At the close of the discussion of Dr. Brown's paper, Dr. VanderHoof, Richmond, asked that he be allowed to make a few remarks, which were as follows:

Dr. VanderHoof: I just want to speak for a very few minutes about the question of the dosage of hydrochloric acid because I am really very much in earnest about this matter. The chief thing to realize in administering acid to patients with achylia is the fact that we are not giving the patient a drug, we are not giving the patient a medicine—we are simply trying to supply artificially a secretion which Nature fails to produce. In other words, we are trying as correctly as possible to follow a physiological procedure. The next thing is this, that in giving the patient a drachm of the official dilute acid, we are not giving him as much acid as the stomach would normally produce. One great difficulty in medical work is obvious—that we are apt to be hidebound by tradition or by practices introduced in the past. The ordinary dose, as given in the text books, of 10 or 15 drops of dilute hydrochloric acid is not sufficient for a case of achylia. I like to emphasize this point for the reason that so frequently the doctor to whom I write in regard to the patient he has referred does not understand this question of large doses, and not infrequently the druggist who fills the prescription writes to know whether or not an excessive dose has not been prescribed.

The work of Crohn, of Mt. Sinai Hospital, quoted by Dr. Brown, is particularly important and he showed that enormous doses of acid may be administered without producing any harm in cases of achylia. He showed that the best results are obtained when the acid is given in doses of fifteen minims at frequent intervals, possibly every half hour, during the period of digestion covering three or four hours. It is difficult for the patient to carry out such instructions and in consequence we order one drachm of dilute acid for these complete achylia cases. The patient is requested to have another stomach analysis made in three or four months to find out if the achylia persists. Only in this way can we distinguish the true from the false achylias. The cases I have in mind are those of persistent achylia, cases that have been followed over a period of years, cases in which repeated gastric analyses show an absence of all gastric secretion.

Dr. Toy, of Stony Creek, here asked Dr. Vander Hoof about the care of the teeth while administering this acid.

Dr. VanderHoof: I have taken this question up very carefully with several excellent dentists. They tell me that the continued administration of hydrochloric acid may possibly affect the enamel of the teeth; they also tell me that if the patient brushes the teeth after taking it there is no danger of this whatever. Therefore, in giving the acid we always caution the patient to brush his teeth after each dose, using a regular tooth-paste or water containing a little bicarbonate of soda. It is an excellent plan for all of us to brush our teeth after each meal. There is no advantage in taking the acid through a tube. Just as much gets on the teeth that way as in drinking it. The pleasantest way to take the acid is in a full glass of buttermilk. The addition of the acid does not affect the physical properties of the buttermilk and alters its taste but a little. Moreover, in this method of administration, an acid albuminate is formed which cannot possibly injure the teeth.

THE LABORATORY DIAGNOSIS OF TYPHOID FEVER.*

By E. C. L. MILLER, M. D., Richmond, Va.
Professor of Bacteriology, Medical College of Virginia; Bacteriologist to State Board of Health.

and

AUBREY H. STRAUS, B. S., Richmond, Va.,
Associate Prof. of Bacteriology, Medical College of Virginia; Bacteriologist to Richmond Health Bureau.

Speaking for and representing the Bacteriological Laboratory of the State Board of Health, we desire to say that this laboratory has no other purpose than to be of the greatest service to the physicians of the State. To this end, the laboratory examnes free of charge, waters, both bacteriologically and chemically; stools for hookworms and other intestinal parasites; blood for malaria, typhoid fever, and syphilis; sputum for tuberculosis and pneumonia; throat swabs for diphtheria; dogs' heads for rabies; and, in fact, does all that a well-equipped State laboratory should do. The laboratory is anxious to work in ever closer co-operation with the doctors of the State, and to constantly enlarge its range of usefulness. It is also necessary that we should keep up with the progress of medicine, and that we should, from time to time, discuss with the physicians of the State the various problems that arise.

It is to talk over with you the improvement of a certain test that we are here today.

For several years the laboratory has tried to help you in the diagnosis of typhoid fever, but we have not been as successful in this as in our other tests, on account of the way in which this particular test (the Widal) is made. Those of you who have made use of this laboratory know that you have obtained

*Read at the fiftieth annual meeting of the Medical Society of Virginia, at Richmond, October 28-31, 1919.

a drop of the patient's blood, placed it on a piece of metal, let it dry, and sent it in to us. This has been of some use; it has helped to fix the diagnosis in some cases, but often it has failed. There are several things about this test that are unsatisfactory. For one thing, the amount of blood placed on this slide may vary from a very minute drop to several large drops. Sometimes the dried blood loosens from the slide and is broken up in the envelope. With such material to start with, it is impossible to make accurate dilutions or to get reliable results. Then this test is faulty not only in its technique, but also in its fundamental conception. This Widal test is a test for the presence in the blood of a typhoid antibody—a substance formed as a result of the typhoid process. It is obvious that such a body will not be formed until well along in the disease; that some patients will produce it earlier, some later; that some patients will produce it in large amount and some in small amount, just as patients react in different ways to the disease.

In hospitals where this has been tried out by making the test on a patient every day or two throughout the disease, it has been found that there is an enormous variation in the time at which the antibody can be found, and in the amount produced. In some patients, it may be found during the first week; in others, it may not appear until convalescence is well established. As a rule, the further along the case, the more apt one is to find it.

Then again, the finding of this antibody does not show conclusively that the patient has typhoid fever. It simply shows that, at some time, in some way, the patient has been immunized against typhoid. He may have typhoid now, or he may have had it at some time in the past; he may have been vaccinated against typhoid, or he may be a carrier of the germs.

In view of all this, we have felt for some time that the laboratory is not helping the doctor very much when it makes a Widal test for him, and that some better test should be used. Fortunately, there is a test which we can make that is of more value. During the early days of typhoid fever, the germs are present in the circulating blood, so that, if you send us some of rthe patient's blood and we find typhoid germs in it, then you can know positively that it is a case of typhoid fever. The only disadvantage is that the blood must be taken with more care than in the Widal test. The blood must be taken with full aseptic precautions, so that no extraneous germs may gain entrance.

During the first week or ten days of a case of typhoid fever, the bacilli are almost constantly present in the circulating blood. They sometimes may be found for several weeks, but in a steadily decreasing percentage of cases, as shown by figures from Coleman and Buxton (*American Journal of Medical Science*, Vol. 133, 1917). In the first week, they may be found in 89% of the cases; in the second, 73%; in the third, 60%; in the fourth, 38%; and after the fourth week, in only 26% of the cases. Consequently, the earlier in the disease a culture is taken, the greater the likelihood of finding the organism. Obviously, the finding of the typhoid germs themselves in the blood is conclusive diagnosis of typhoid fever.

The usual method of taking a blood culture is as follows: Cleanse and sterilize the skin of the arm just at and below the bend of the elbow. Bandage the upper arm tightly enough to distend the veins. With a sterile syringe and rather large needle, draw several cubic centimeters of blood from one of the large veins at the bend of the elbow. Quickly run the blood into the bottle of culture media provided in the outfit. Care must be taken not to contaminate either the media or the blood in withdrawing the stopper or in running in the blood. Mail the outfit promptly, preferably by special delivery, to the laboratory.

The best culture media for this work is ox-bile to which peptone has been added. This is the media we supply in our outfits.

The laboratory examination of a blood culture usually requires about two days. If there is a contamination, a longer time will be required.

If the physicians of the State will give this method a fair trial, we are convinced that, in a few years, the Widal test will very seldom be resorted to.

Discussion.

Dr. P. M. Chichester, Richmond: Being connected with the Health Bureau in the city, I feel very grateful to Dr. Miller and his co-workers for the great deal of emphasis laid upon the taking of

blood for blood cultures, rather than taking blood for the old Widal reaction, for aiding in the diagnosis of typhoid fever. That the possibilities of the Widal reaction are very misleading to the physician in his diagnosis are manifest, as Dr. Miller has pointed out and as I shall try to emphasize now.

Quite a few cases have come under my observation, while acting in the capacity of Medical Inspector of the City of Richmond, where the Widal has shown positive and the case finally diagnosed as something else besides typhoid fever. When responding to the request from a physician to take blood for diagnosis in typhoid, I made a practice of taking blood for the Widal along with that for the culture. The results were very interesting and proved very conclusively, to my mind, that the Widal reaction is practically worthless as a diagnostic point. As a result of this work done by me in comparing the Widal and culture, we have discontinued taking blood for Widal, even when requested by a physician. On the other hand, we are willing and anxious to take blood for culture as an aid to diagnose typhoid. As Dr. Miller has said, a Widal will show positive if the patient has ever had typhoid, or has taken typhoid vaccine, and in a certain group of diseases. So, with these facts, and vaccination against typhoid increasing each year, the old Widal reaction becomes more and more useless. In the cases where I took blood for cultures and Widals, the results were marked—some negative Widals with positive blood cultures and some positive Widals with negative blood cultures, in which latter case, almost invariably, the patient proved not to have typhoid. (In one case, I recall, the child finally developed whooping cough; and in another tuberculosis, where the Widal was positive and the blood culture negative). We know that every positive blood culture means a case of typhoid fever, however mild.

Another big point in favor of blood culture is the fact that it is such an early means of diagnosis, which is, of course, attractive to me as a health officer. The earlier we can get after the sanitary conditions surrounding a case of typhoid, and give instructions to other people who are thrown with it, and find out the possible source of infection, the surer we are of having no more cases develop from this one, or from the same source, and the happier we are. The earlier the blood culture is obtained, the more certain we are to have a positive result, if typhoid be present. (In the first three or four days, only about 2 per cent. of positive cases show a negative blood culture. This percentage decreases as the case progresses). On the other hand, the Widal will not show positive until about the tenth day, or thereafter, in which time every member of the family has stood a good chance of infection.

The physician who can tell the family early that he KNOWS the patient has typhoid, has gone a long way towards gaining their confidence and respect. I feel that if every physician here would take back and apply in his practice this one fact, that the early blood culture is the only real test for typhoid fever, now well established, he will not have misspent his time in attending this meeting.

Again, I want to thank Dr. Miller, as representative of the State and City Bacteriological Laboratory, for taking this stand, even though it does add much work to his already very busy force; also I wish to thank each and every physician here for his kind attention.

Dr. J. M. Hutcheson, Richmond: I should like to ask Dr. Miller what he thinks of the advisability of stool culture as the routine in typhoid. The Widal is unsatisfactory, particularly in vaccinated cases; the blood cultures are positive only during a limited period. The bacilli are present in the stool probably throughout the disease and specimens can be readily obtained. With the proper laboratory technique, it seems to me that a stool culture will come to be the most valuable means of laboratory diagnosis in typhoid at our command.

DIVERTICULUM OF THE BLADDER, WITH REPORT OF THREE CASES.*

By R. L. PAYNE, M. D., F. A. C .S., Norfolk, Va.

With improved methods of diagnosis Diverticulum of the Bladder has been brought from the dim light of a post-mortem anomaly to the realms of the present day surgery and is now recognized as a definite surgical entity. As late as 1906, Young could find report of only five cases of operations performed for radical cure. Since then, valuable articles on the subject have been contributed by Clark, Cabot, Lower, Squier, Young, Lewis, Bryan, Rathbrin, Judd and others. The technic of operation has been improved and, though the mortality is still high in those cases with acute diverticulitis, the possibility of radical cure opens a promising field for the surgeon.

The pioneer writers on the subject were prone to draw hard and fast lines between types and all strove to accomplish a differentiation of the congenital and acquired diverticulum. The congenital type was formerly thought to be those in which all coats of the bladder were involved in the diverticulum; the acquired type had a sac composed of mucous membrane only, in other words, it was merely a hernia of the mucous membrane between the fibres of the muscular coat of the bladder wall caused by some obstruction in the urinary outlet, usually in the neighborhood of the neck.

Thomas reviewing twenty cases of the Mayo Clinic was unable to differentiate the acquired from congenital type by the presence or absence of muscle bands, thereby refuting the theory. Lewis was unable in his cases also to confirm Rokitansky's declaration that diverticula were found only in bladders with hypertrophied walls and the same writer asserts that

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*Read at the fiftieth annual meeting of the Medical Society of Virginia, at Richmond, October 28-31, 1919.

the walls of all diverticula, acquired or congenital, are supplied with so little muscular structure that they are practically inert and urine therefore tends to stagnate.

Undoubtedly diverticula may be congenital as instances have been reported in infants and small children and it would seem that in most of such cases there must have been some congenital defect in the bladder as a primary etiological factor. That this is not difficult of appreciation, Bryan goes into the embryological development of the bladder and states that in view of this fact the allantois is destined to subserve a complex three-fold duty: first of dilatation proximally to substitute the bladder; second, obliteration mesially to form the urachus; and third, vascularity distally to connect with the placenta.

Even minute pathological deviations from original foetal design would result in adult vesical anomalies which are readily transformed into an abnormal state by the embarrassment of urination seen so commonly in the elderly male. That some are acquired either at the point of some congenital defect or elsewhere seems easily explained; even the occurrence of an occasional traumatic case seems plausible.

The number varies; in either the congenital or the acquired types they may be multiple, though usually there is a large sac and one or more small ones. It is doubtful if those cases of extreme trabeculation of the bladder wall can be classed as multiple diverticula though some writers state that this question depends on how deep one says an intramuscular depression shall be to give it the dignity of a specific name. They occur almost exclusively in the male, very few cases having been reported in the female. As regards location, the statistics of the Mayo Clinic show that the greatest number were found near the base of the bladder on the right wall, the base being next in frequency, and a few cases of the dome.

In the absence of infection the symptoms are mild; with infection (usually colon) there occurs a severe type of cystitis, with very foul urine, due to residuum, frequency of urination, dysuria and nocturnia. Diverticula of the bladder should be suspected in all cases of severe intractable cystitis of long standing accompanied by very foul urine. Differential diagnosis, however, should exclude obstructive lesions and disease of central nervous system, which not infrequently coexist. Occasionally there is a history of apparently emptying the bladder completely and directly after, following some change of posture, the patient will pass a considerable quantity of foul urine. It is almost pathognomonic of diverticulum to have a considerable amount of urine thick with pus escape from the catheter just at the time the bladder was supposed to be entirely empty.

The diagnosis is strongly suggested by the clinical features but the accurate determination of the condition rests with the cystoscopic examination, the employment of the leaded catheter and X-ray, and the use of cystograms. In a large number of cases the orifice of the diverticulum is seen through the cystoscope but severe cystitis, cloudy urine, and obstructions or distorted viscus often complicate this procedure. Then again, the orifice may be closed and the diverticulum not recognized at the time of the examination. Cystograms are valuable and are readily done with a 25 per cent solution of sodium bromide as recommended by the Mayo Clinic, a solution that has a double advantage of being cheap and easily sterilized. In difficult cases, the landmarks are more easily associated if the cystograms are made in two diameters and viewed stereoscopically. Palpation and rectal examinations are sometimes of value and, as a last diagnosis venture, we have exploratory cystotomy.

In reviewing the experiences of others and from our own observation it appears clearly that palliative treatment and any form of treatment other than excision of the sac has not given good results. A mortality as high as 83.1 per cent has been reported in cases in which there was a diverticulitis at the time of operation. This rate has been greatly reduced and in a large percentage of cases the convalescence is good, though fraught with a tendency for the wound to heal slowly.

Three operative procedures have been suggested:

1st. Supra-pubic cystotomy, incision of diverticulum in one, two or more places as suggested by Chute to enlarge the orifice for better drainage into the bladder. Such a procedure does not relieve the condition permanently and is not without danger of post vesical extravasation.

2nd. Plastic operation of Squier in which the wall between the bladder and diverticulum

is clamped in two places, then cut between and sutured, thus converting the two cavities into one after the manner of a pyloroplasty.

3rd. Radical extirpation in toto by means of intra- or extra-vesical or combined manipulation, suturing the resulting defect in the bladder wall either from without or within the bladder. Several ingenious ways of handling the indefinite sac of the diverticulum have been suggested and used. Young invaginates the sac into the bladder by means of a suction pump. Lower fills the sac with strips of gauze and thus creates a definite mass for enucleation. Other operators depend on fingers within the sac to guide them in the dissection. After-treatment depends on the individual operator. Some drain the bladder through the supra-pubic wound while others put in a self retaining catheter and sew up the bladder wall tight. It is wise in either case to drain the pre-vesical space either through a stab wound as suggested by Young or through the original incision. Bladder irrigations may or may not be necessary and the urinary fistula, which is often slow in healing in those cases drained supra-pubic, requires some care and attention.

The writer has had three cases successfully operated, all of whom have remained well and free of all symtoms. Radical extirpation was done in two cases and a plastic, after the method of Squier, was done in the other.

NEOPLASTIC GROWTHS TREATED SUCCESSFULLY BY X-RAY AND ELECTRO-THERMIC MEASURES.*

By CHARLES A. PFENDER, M. D., Washington, D. C.

Roentgenologist Sibley Memorial Hospital, Georgetown University Hospital, Tuberulosis Hospital, Washington Asylum Hospital, Episcopal Eye, Ear and Throat Hospital; Instructor in Roentgenology and in Electro-Therapeutics, Georgetown University Medical School, etc.

Malignant growths and the effort to arrest and destroy them is my theme. The title suggests a variety of ammunition, yet this is but a small array of the many measures resorted to for the cure of neoplasmic growths. This multiplicity of remedies speaks favorably for the virulent cerebration which engendered this activity, but on the other hand our weakness is emphasized by this very great variety. We still have no specific for cancer but we have many so-called near specifics which, when properly applied and skillfully combined, will frequently effect the desired therapeutic result. This consummation, we find, is obtained only at the price of eternal vigilance, exercise of exquisite care, and absolutely thorough scientific methods of procedure.

In my hands roentgentherapy has proved the sheet anchor around which other methods radiate to enhance the beneficent result. The application of roentgen-rays in the treatment of malignancies of all kinds has been successful in a large percentage of cases, and x-rays alone sufficed. On the other hand, failure to effect a complete cure in some particularly interesting cases prompted me to seek additional help. During the past four years I have broadened my therapeutic field to a point where I am beginning to feel that we are on the threshold of great possibilities that point to therapeutic visions, the like of which the world has not yet seen. Our inspirations and aspirations, tempered by judgment and confirmed by scientific research, should be enthused and vivified through these profitable experiences and broadened observations of the past.

In the treatment of these cases every effort should be made to establish an accurate diagnosis. Proper tests for the exclusion of luetic infection are indicated in every suspicious or doubtful case. The excision of tissue for diagnostic purposes is, in my opinion, frequently not advisable in cases where the clinical picture is clearly descriptive of the nature of the lesion involved. In advanced cases tissue may be removed immediately before thermo-coagulation and pathological study be done later. Experience has shown that biopsic indulgence, no matter how desirable from a scientific point of view, has entirely too frequently hastened general metastasis and death.

The methods employed by me for the eradication of malignant growths at the present time constitute five agents which may be employed singly or combined and which are of value and importance in the order named:

1. Roentgenization.
2. Desiccation. Fulguration.
3. Electro-thermic coagulation.
4. Surgery.
5. Hypodermic administration of electrolized metallic colloids (copper, selenium, etc.)

Radium also fills a place of importance and

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I hope soon to obtain the desired amount necessary for major work.

This is a brief report of thirty-seven cases of cancer of the skin and mucous membranes of the head, involving the cheek, ear, eye, lip, nose and tongue. They comprise cases of basal cell cancer of the skin, squamous cell epithelioma of the skin and mucous membranes and epithelioid neoplastic tumors of various kinds. Twenty-two of thesre cases were treated by x-rays alone. Three more difficult cases were treated by electro-thermic coagulation, combined with x-rays. Nine cases were first given a desiccation or fulguration treatment immediately followed by x-rays. Three were preceded by surgical excision, followed by x-ray treatment. Cases in which I have used colloidal copper and selenium are too recent to justify conclusions. The results of this adjunct have been so decidedly beneficial in some cases, however, that I am employing the method more extensively now and expect to report cases later.

Fulguration. This is the application of the unipolar long spark of high frequency and high tension. This current is usually obtained from an Oudin resonator. The destruction of tissue by this method lends itself happily to the more delicate work for superficial lesions.

Desiccation. Based on the theoretical deduction that heat effects range in degree from hyperemia to burning, and somewhere between these two extremes there is a point the effect of which is more than hyperemia and less than burning, which may be called the desiccation point. William L. Clark treats malignant neoplasms by heat sufficient to cause rapid desiccation of the neoplasms, srterilizing and converting them into an inert mass.

Electro-Thermic Coagulation. Pfahler defined electro coagulation as the destruction of the malignant disease by coagulation produced by the heat generated in the tissue, because of the resistance to the flow of the high frequency current. The current is applied by means of the bipolar electrodes. The indifferent electrode should be quite large. not less than 6x6 inches square, moist and snugly applied to the skin. The active electrode is usually pointed. The destruction of tissue by this method is the result of coagulation. A local or general anesthetic is necessary as the application of this current effects extensive removal of diseased and normal tissue. The method is a most effective one and bloodless, as all the smaller arteries and veins are coagulated. The slough separates in from ten to fifteen days and complete rapid recovery follows. In one of my cases, one third of the tongue was removed without difficulty or hemorrhage. Doyen, who was probably the first to apply electro-coagulation of tissue, reported the successful treatment of all varieties of cancer which are readily accessible, and today electro-coagulation is considered by advanced roentgentherapists the most valuable adjunct to x-rays in the treatment of cancer of the skin, lip, tongue, tonsils, pharynx, larynx, cervix uteri and rectum.

Chemical or Electric Colloids. Copper, selenium, cholin, etc., promise to be of value as adjuncts to roentgen-therapy. I have used them in comparatively few cases thus far, and I have noted distinct improvement when selenium or copper colloid was administered in cases where roentgen-rays alone appeared to have little effect on the tumor.

It has been shown experimentally that particles of colloid copper can be demonstrated in the granulations of cancerous growths after two or three injections of the colloid. Clinically there is usually relief from pain, appetite and strength return, gain in weight is noted and in many cases a diminution in the size of the tumor. From my personal observation of the action of colloidal copper and selenium. I am inclined to think that probably these adjuncts serve a function akin to that of formation of antibodies, increasing the bodily resistance, and neutralizing to some degree the toxic products formed by the destruction of the pathological cells.

The injections of these colloids are made intravenously or intramuscularly. The dose ranges from three to five c. c. every four days or oftener, with such intervals as are indicated by the clinical observations. There is no constitutional reaction and the local signs are practically *nil*. Needless to say, the most scrupulous aseptic measures are imperative.

I shall present only a few representative cases illustrating the conditions usually encountered and the methods employed in combating the neoplastic growths.

Cancer of the Cheek. Six cases were treated by x-rays alone, seven were treated by ful-

guration, followed by roentgen-therapy. All showed improvement with complete cure in twelve cases. The exception was noted in the case which withdrew from observation and the subsequent history has not been obtained.

1. Mrs. E. A., age 50; epithelioid growth the size of a quarter on left cheek of five years' duration. Wound ulcerating recently. Referred by Dr. Wm. P. Reeves. Treated by roentgen-rays April 23 and May 14, 1918. Complete cure. When last seen on September 30, 1919, patient was still entirely well.

2. Mrs. M. F., age 55, referred by Dr. L. H. Taylor, April 27, 1917. Had small growth on right cheek external to oral angle for about thirteen years. Began to increase in size three years ago. Treated by caustics and similar methods without improvement. Ulcerated area size of a dime and two distinct nodules persisted. Patient consulted Dr. Taylor for cosmetic reasons and because she was becoming worried as to its possible malignancy. Three treatments by x-rays were given April 27, May 8, May 21, 1917, with complete recovery. No signs of recurrence to date, two and a half years ago.

Roentgen-Therapy and Fulguration Combined. 1. J. C. A., male, age 80, machinist. Four epithelioid growths below both eyes and at angle of mouth. Referred by Dr. Clarence Weaver, March 19, 1918. Three treatments of roentgen-rays effected complete recovery by April 5, 1918. Two new nodules formed about an inch distant from the healed scar on November 27 of the same year. Two applications of x-rays, preceded by fulguration caused the neoplasms to heal entirely and to remain healed until August 19, 1919, when recurrence was noted in the skin below the eyes. An intensive dosage ofr x-rays was applied with immediater improvement. Since then the patient has remained well.

2. W. H. B., age 78. History of "smoker's cancer" of right lower lip, excised surgically seven years ago. No recurrence. Referred March 12, 1919, by Dr. S. S. Adams for tumor at angle of right jaw, size of chestnut, which was first observed about four months ago. In addition there presented two small epithelial skin tumors beneath the eyes. Thermo-coagulation under local anaesthesia with entire destruction of the large growth in the angle of jaw with fulguration of epithelial masses. X-rays were applied immediately afterwards. Sloughing occurred very slowly and repeated roentgen treatments were administered. By September 20, 1919, the cancerous growth had completely disappeared and the skin was clean throughout. (Fig. 1.)

Figure 1.

3. E. R., male, age 80, referred by Dr. Louis Mackall, March 28, 1919, for pedunculated ulcerative tumor of right cheek. Fulguration and roentgenization eradicated the neoplasm in one treatment.

4. W. J. W., male, compositor, age 58, referred by Dr. Speeden for malignant ulcer, size

of quarter at the left temple. This began five years previously. Fulguration and roentgen-therapy applied March 7, 1919. Completely cured by April 11, 1919, after one treatment. In August, slight irritation of the skin was occasioned by a slight trauma and recurrence was suspected. Slight fulguration and x-rays were applied with prompt healing.

Cancer of the Lip. Five cases of cancer of the lip were treated, one by surgery followed by x-rays, three by electro-coagulation and x-rays, and one by x-rays alone. All lip cases were completely restored to normal with the exception of one treated by x-rays alone.

1. F. G., painter, age 61, cancer of the lower lip of four years' duration. The photographs (figure 2) which are shown describe the condition before and after treatment. Electro-thermic coagulation was done with removal of the entire diseased growth. Deep roentgen-ray treatment was given with special attention to the cervical lymph channels. Some of the left lower teeth appeared diseased and proved a source of constant irritation to the wound. These were extracted. The first treatment was given on December 21, 1917, and by March 23, 1918, the patient was entirely well and remained so until February 27, 1919. While driving through the woods at night his chin and cheek were struck by the limb of a tree, bruising the tissues severely and tearing a deep gash into the skin at the angle of the mouth. Infection occurred and this was followed by what appeared to be a malignant manifestation for which he consulted me again. Thermo-coagulation and extensive x-raying were considered advisable, and this was done March 13, 1919. Patient lives quite a distance from Washington and I did not see him until April 14. He was markedly improved by that time but the ulcer had not yet entirely healed. He was treated by roentgen-rays. I saw him May 5th and again irradiated the slight ulcer which still persisted, although the patient reassured me that it did not give him the slightest uneasiness or inconvenience. I have not seen him since that time, but his son told me recently that he was entirely well again.

2. D. W. P., clerk, age 73, referred by Dr. Holt. Presented an ulcer the size of a small coin on mucosa of lower lip which had existed for five years, but had lately increased in size and had become quite painful. Had tried various pastes without success. Electro-thermic coagulation was advised but declined. Would permit roentgen application only, and although powerful applications were repeatedly administered, it appeared to have no effect whatever on the cancerous growth. He definitely refused to accept any other methods that I had found effective in similar cases and sought surcease in pastes, with what result I am not able to state.

Figure 2.

Cancer of the Tongue. This list comprises only three cases, each case representing a widely different phase. One was hopeless from

the start and yielded to the inevitable; the two remaining cases were quickly cured but one died from dysentery. The other is still well and shows no recurrence.

1. G. E. McM., messenger, age 64, referred by Dr. Hemler for treatment of what at first appeared to be a very slight abrasion on the left lateral margin of the tongue. In four months it had developed to size of a cherry or larger, and showed deep, indurated margins. The ulceration was quite painful and interfered with mastication. Deep roentgen-therapy was applied August 4, 1919. Electro-coagulation under general anesthesia August 7. Removal of about one-third of the tongue. Improvement of the local condition was prompt and the cancer had healed entirely in three weeks. Gastro-intestinal symptoms developed, however, and patient died from exhaustion.

2. Mrs. H. L. T., age 42, neoplasm of dorsal surface of tongue appeared about three months ago and grew rapidly. Electro-coagulation and x-ray application Jun 24, 1917. Received additional x-ray treatment August 5, 1917, and has had no recurrence to date, over two years ago.

Cancer of Eyelids and Forehead.—These five cases give such a varied history and termination that a more detailed account of them is justified. Three were cured, two were improved but died from general carcinosis.

1. J. K. F., carpenter, age 44, referred by Dr. Wm. P. Reeves, April 30, 1917. Notes of the history are as follows:

"Twenty years ago a bruise occurred on outer angle of right orbit; one year later no increased swelling, but ulceration. Cauterized. Remained healed for six months, then recurred. One year later the ulcer was burnt out with acid, but kept getting larger all the time. Thirteen years ago an operation with removal of the tumor was effected. Eye was not affected at that time. Remained healed for about a year, then ulcerated again and grew to size of twenty-five cent piece. At this time he was x-rayed once a week for ten weeks. No improvement. Six months later x-rayed by Dr. Bailey, Collinsville, Pa., for eighteen months at intervals: mass seemed to be disseminated rather than improved. Size of half dollar by now, and of about seven years' duration. Used ointment six years ago and ulcer healed except at angle of eye. Then it began to grow again slowly for about two years. A year ago this ulceration increased to almost half of the face and, in December, 1916, eye became swollen and shut." Present status: Ulcerated area extending from above the ear and front of ear over cheek down to within ½ inch of angle of lip, up and over side of nose, over eye-lid which is swollen size of walnut, and extending from forehead directly back to ear. Size of area involved is about two by four inches, and at angle of right eye is noted a tumor mass the size of a large walnut. The margins of the skin are greatly thickened, rounded and encrusted. Slight hemorrhage at time of examination from small artery which has been eroded. States that he has of late had frequent profuse hemorrhages from the wound. Has suffered considerable pain in the back for the past twelve months; occasional pains in chest. Finally had to stop work March 1, 1917, partly due to pain in back and chest and to loss of blood caused by hemorrhage arising from the ulcerations of the face. On April 30, 1917, I treated him with x-rays and marked improvement was noted by May 10. June 1, fulguration of tumor mass. About this time the pain in back and chest began to become so excruciating that morphia alone would relieve him. There was no doubt in my mind that a general carcinomatous involvement was going on, although, during all this time, the facial cancer was healing rapidly. By June 15, the pain became localized about the shoulder blades and sacral region, and he was so tortured by pain that he was able to walk only while resting his hands on his knees. I finally succeeded in getting him back to my office on July 15 and made a roentgenogram of the chest. This showed clearly that numerous carcinomatous areas were involving the ribs; the metastatic growths no doubt involved the spine and pelvic girdle, but patient was feeling so badly that I refrained from making further roentgenographic study. After treating the back by x-rays over three large areas, the pain in the upper dorsal region disappeared. He now required morphia only for sacral pain. One day he tried to move about the bed unaided and he felt as "though something broke," no doubt fracture of the rib. The local condition improved but general carcinosis caused death December 10, 1917.

2. T. M. R., age 50, printer, referred by Dr. Chadwick for epithelioid growth of outer in-

ferior canthus of left eyelid. This growth had existed for many months and had begun to enlarge during the last four weeks. The tumor disturbed vision and gave rise to considerable pain. Received deep x-ray therapy May 16, 31, June 22, July 18, 1916. Complete recovery with recurrence. Tumor had disappeared and patient was entirely well after second treatment May 31, 1916.

Cancer of the Nose. The ten cases of this series are to me the most interesting of all. Nine of the ten were cured, and the tenth case is still living but suffering. Her disinclination to permit the use of thermo-coagulation continues to subject her to much suffering and distress. This case and one other were the only ones where X-rays alone were employed.

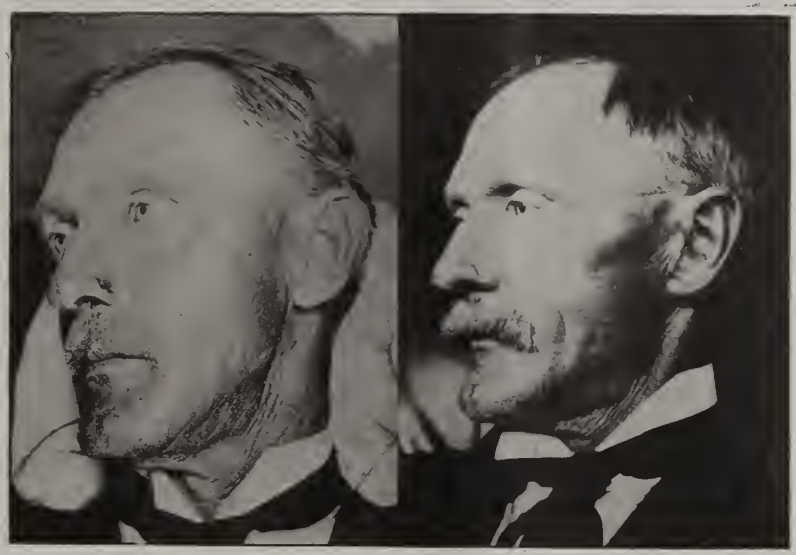


Figure 3.

The remaining eight cases were most successfully treated by combined methods.

1. W. M., male, age 46, referred by Dr. Tewksbury, May 20, 1919. Basal cell epithelioma situated below the angle of the right eye along the nose had existed for more than a year. Ulcerated surface the size of a silver dime. Fulguration under local anesthesia followed immediately by deep roentgen irradiation effected a complete recovery without recurrence to date.

2. J. H. Reid, carpenter, age 54, referred by Dr. Nourse, for malignant ulcer of the nose, This growth had persisted for several years without improvement and lately it had begun to bleed. Photographed March 17, 1919. (See Fig. 3, before and after treatment). Fulguration and one application of X-rays healed the ulcer completely. No recurrence.

3. Mrs. M. J. C., age 93, referred by Dr. George Acker, February 10, 1916, for cancer of the nose, which had eaten away the entire dome of the nose, right and left alae nasi and a large portion of the septum. The trouble started four years ago with a small "pimple" on the tip of nose. A prominent skin specialist unsuspectingly snipped away this little growth with a pair of scissors. The resultant wound failed to heal and progressively invaded the tissues as already described.

Roentgen-ray treatments were given February 10, March 22, May 1, June 17. By June 1st, 1916, the nasal ulceration was entirely healed. (See Fig. 4, before and after treatment.)

In July of the same year she developed boils with infection of the face. She recovered and remained well until March 22, 1917, when she took cold, followed by excoriating discharge from the nostrils. Pockets of pus formed and her general conditions failed rapidly, due to senile changes and she died September 22, 1917, in her 94th year.

Conclusions:

1. In the treatment of neoplasms of the skin and mucous membranes, the most satisfactory results are obtained by the employment of combined methods.

2. The proper selection of the method or

Figure 4.

methods to be employed and the skilful application of these agents will determine the high percentage of happy results obtained. Surgery is indicated in every case of metastatic gland involvement.

3. As a rule, the recent cases offer the best prognosis, but surgically inoperable and apparently hopeless cases frequently respond quickly to combined methods where x-rays or radium have failed.

1206 *Eighteenth Street.*

BLOOD PRESSURE AS A MEASURE OF OLD AGE.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

"A woman is as old as she looks," "A man is as old as he feels," "We are all as old as our arteries," are sayings which we have heard all our lives, and which at one time or another we have accepted without question. But how much truth is there really in them, and what bearing have they, if any, on the time one's life is yet to run? For is not old age merely an expression of the fact that one's life and usefulness are nearly spent?

To examine our maxims more critically, we all have gotten to doubt the first in this age of paint, powder, and false hair. For who sees better than the medical man the difference between the bright complexioned, yellow haired, short skirted dame we meet on the street, and the sallow, gray haired old woman we may be called in to see professionally the next week? It is often hard to believe it is the same person, especially when we have passed the lady at a little distance. Yet we all have cases of this kind in our practice, and we all have at one time or another been forced to replace the saying, "A woman is as old as she looks" by "Looks are often deceiving."

Is then, "A man as old as he feels"? This likewise seems untrue when taken as a measure of life expectancy, for some men are old and sedater in their youth, and many never have the fun and flings which are usually the privilege of youth. On the other hand, when we see officers retired on account of age, dancing and frolicking in the way only very young men should, we know that youthful actions are not necessarily a sign of many years to come.

But if we cannot take our first two maxims at their face value, is it not true that we are indeed as old as our arteries? Old age, and finally death may come from arterial degeneration, and the consequent poor circulation; but how are we medical men to judge this? And how are we to tell the degree of arterial change, and judge from this the length of time the man may be expected to live and work? We formerly judged by feeling the pulse to see if the radials had become sclerotic, but autopsies have taught us that sclerosis may attack other

*Read at a meeting of the Norfolk County Medical Society.

arteries and leave the radials comparatively free, and we have also learned that we frequently could not judge the blood pressure from the way the pulse felt. So we naturally turned to instrumental estimation of ther blood pressure which has been made easy by the various clinical sphygmomanometers. We have tried by using this instrument to interpret the adage, "We are all as old as our arteries," and among the first fallacies some one said that the normal pressure was 100 plus the persons's age. This has been accepted so literally by some that one patient of mine was quite worried at the thought that a doctor could always tell her age simply by taking her blood pressure. I had to assure her that no rule held in estimating age when it applied to the female of the species, as one could not even tell a mare's age from looking at her teeth. But this rule also does not hold true with men, for I know active, well preserved men in their seventies or eightires with sytolicr pressures below 140.

Again, some one said that a person with a pressure of over 200 would not live two years, and many a young physician has hazarded a prognosis on this observation alone, frequently to find that he had been mistaken. How long can a patient then live with such a pressure? Frankly, I do not know, but I do know women who had a pressure of 200 ten years ago, and who are still alive and apparently not much nearer death than they were at that time.

At other times we find one patient with a pressure of 200, but with few, if any, other symptoms, while her younger sister with a pressure of more than fifty points lower has a loud systolic murmur at the aortic, cardiac hypertrophy, and pain along with the head noises, headaches, vertigo, and mental changes, typical of arteriosclerosis. In my judgment the younger sister doubtless has more general arterial changes than the other, though I would hesitate to predict which would outlive the other. I will quote a recent article by Moschowitz, which throws interesting light on this question: "The fact that hypertension occurs as a rule at that time of life when sclerotic lesions of the arteries become prominent, has led many to believe that the sclerotic changes are the cause of hypertension, but there is no fact more easily demonstrable in every autopsy room than that profound sclerotic changes may be manifest without the slightest evidence of hypertension during life, and conversely that an extreme hypertension may be present with little or no changes in the blood pressure. Indeed, there is no relationship between the extent of the arteriosclerosis and the height of the blood pressure."

This, however, does not say that hypertension and arteriosclerosis are as a rule concomitant, but merely that the extent of one cannot be measured by the other.

What then is the significance of hypertension in regard to old age and life expectancy? Hypertension is now held to be a compensatory process, brought about by the attempts of the circulatory apparatus to regulate the proper distribution of the blood. Certain it is, that high arterial tension is perfectly compatible with well being, and is often only discovered by pure accident, as was true in the case of a negro preacher with a pressure of 240 who merely complained of some "wheezing in the chest," and who was not thereby prevented from exhorting the faithful, and eating all the fried chicken Providence provided.

From the modern viewpoint, a circulation in which high arterial tension is an element, is in a state of decomposition; that is, its maximum efficiency is impaired, but how much it is impaired must be judged from other symptoms. Whether the hypertension is the result or the cause of the arteriosclerosis is also debatable. What, then, is the normal adult blood pressure? It is now generally considered to lie between 105 and 140, whether the man be twenty-five or seventy-five, variation above or below these figures showing circulatory decomposition. It is important to find out at what pressure the circulation is best maintained and the man feels most comfortable, or, as it may be expressed, what is the optimum pressure. Several observations are necessary to find this, and also to eliminate the hypertension which nervous individuals can temporarily add to their usual pressure. How much significance there is in this nervous exacerbation I yet do not know, but almost all women can be made to run up their pressure under excitement. Such an exacerbation has been responsible for many faulty prognoses, especially when coupled with the false assumption that a pressure of 200 means death in two years. A progressive rise in "optimum pressure" means an increasing decompensation, and is usually followed by other signs of aging. What these signs are depends

in part at least upon the seat of the trouble which gives rise to the increased difficulty in circulation, and the consequent increase in pressure necessary to maintain it. If the trouble is mostly in the peripheral vessels we have the loss of flesh and strength, the cramps, and the senile changes in the skin and hair. If it be in the heart and aorta, we find at least in the advanced cases the cardiac hypertrophy, the changes in rhythm and the heart sounds, the dyspnoea and precordial oppression, or pain. If it be intracranial, we have the headache, the dizziness and head noises, or irritability and change in disposition, or loss of memory and mentality, and the symptoms often called "second childhood," or perhaps we may have a senile dementia. It the changes be mostly in the kidneys, we may have uremic symptoms which overshadow the usual symptoms of age and poor circulation. Of course, we may, and generally do have changes in more than one of these general divisions, with a consequent mixture of symptoms, though we can usually find a predominant type by which to classify the case.

It seems hardly necessary to draw attention to the fact that a fall in blood pressure to below the optimum often means that the heart is weakening, and is it least unable to do the work that is expected of it. When this is pronounced we may have all the signs of "broken compensation" at times associated with fibrillation. I have seen the pressure drop as much as 80 points at such a time, but the patient rally under rest, morphine, and digitalis. Again, I have seen a struggling, fibrillating heart push the blood pressure of its strongest beats well above the optimum pressure, though the weaker beats were much below it. In this case digitalis and rest reduced the pressure of the heavy beats.

From what I have just read, it can readily be seen that the saying, "We are all as old as our arteries," or better still, as our circulatory apparatus, is in large measure true. But we cannot judge of life expectancy by the feel of the radials alone, or by the blood pressure, any more than by whitening of the hair, which in some families comes early, and in others late, in such cases apparently having little or no influence on the health of the individual. But increasing greyness of the hair, a loss of flesh and senile changes in the skin, when accompanied by an increasing optimum pressure, show circulatory changes which should not be neglected, as these are warnings that the man must not lead such a strenuous life as he has been leading. Attention to these signals will often allow life to be prolonged many years. Women usually obey them better than men, which explains in part at least, why women live as a rule longer than men with elevated blood pressure. I do not mean by this that a man should always be told to stop his work and be left to fret and worry, for the last state may be more harmful than the first, but merely that he be taught to live sanely, slowly, and cheerfully, to do the best he can in life, and not worry over impossibilities, for in such cases it is indeed worry that kills. And it is well to be remembered that a bad prognosis given to such a patient may hasten his death.

To return once more to our maxims, a person's looks as evidenced by white hair may mean little or nothing. A slowing down in youthful activities may actually prolong life. A high blood pressure may under certain circumstances persist for years, and the person be able to live and work. But when changes in the blood pressure are accompanied by progressive changes in the looks and in the actions of a man, it is time for the medical man to step in and warn the patient to slow up and take care of himself, or else be ready to take the consequences.

Bank of Commenrce Building.

LAENNEC'S STETHOSCOPE.

By S. W. DICKINSON, M. D., Marion, Va.

The fact that one hundred years ago Laennec discovered the stethoscope has received appropriate notice in most of our medical journals.

On page 239 of the December, 1919, number of the VIRGINIA MEDICAL MONTHLY, under the heading "From a Child's Toy," we read that Laennec, "observing some children playing in the gardens of the Louvre, listening to the transmission of sounds along pieces of wood, conceived the idea of utilizing this method of listening to breath sounds in examining patients' lungs. He went home, fashioned a tube by rolling up some glued paper and then experimented with this in his wards at the Necker Hospital. From this incident in the garden dates the modern stethoscope, an instrument well-nigh indispensable in the modern practice of medicine."

I have before me a copy of the first American reprint (dated 1823) of Dr. John Forbes' English translation of the first edition of Laennec's book, published in 1819, and on page 211 he gives the following account of how he came to make this discovery. "In 1816 I was consulted by a young woman laboring under general symptoms of diseased heart, and in whose case percussion and the application of the hand were of little avail on account of the great degree of fatness. The other method just mentioned (applying ear to chest, S. W. D.) being rendered inadmissible by the age and sex of the patient, I happened to recollect a simple and well known fact in accoustics, and fancied at the same time it might be turned to advantage on the present occasion. The fact

This cut shows Laennec's stethoscope reduced to one-third of its actual dimensions. Figure 6 in this cut shows actual diameter of stethoscope.

I allude to is the augmented impression of sound when conveyed through certain solid bodies—as when we hear the scratch of a pin at one end of a piece of wood on applying our ear to the other. Immediately on this sug-

gestion, I rolled a quire of paper into a cylinder and applied one end of it to the region of the heart and the other to my ear, and was no little surprised and pleased to find I could thereby perceive the action of the heart in a manner much more clear and distinct than I had ever been able to do by the immediate application of the ear. From this moment I imagined that the circumstance might furnish means for enabling us to ascertain the character, not only of the action of the heart, but of every species of sound produced by the motion of all the thoracic viscera."

Then followed a long series of observations and experimental work at the Hospital Necker, and the verification of these observations by post-mortems, which led to the production of two books, the first, from which I quote, published in 1819 and a revised and much enlarged edition in 1823, in which he standardized and made exact our knowledge of diseases of the chest and gave us a common phraseology, for many of the terms now in use, as "rales," "pectoriloquy," etc., we have taken over directly from the French of Laennec.

Added to all this work by which he was "enabled to discover a set of new signs of diseases of the chest," destined to make his name immortal, he experimented to find the best material and construction for the conveyance of sound. I give a photographic reproduction of a plate showing the instrument used by Laennec in 1819 which he describes s follows:

"It consists simply of a cylinder of wood, perforated in its center longitudinally, by a bore three lines in diameter, and formed so as to come apart in the middle, for the benefit of being more easily carried. One extremity of the cylinder is hollowed out into the form of a funnel to the depth of an inch and a half, which cavity can be obliterated at pleasure by a piece of wood so constructed as to fit it exactly, with the exception of the center bore, which is continued through it, so as to render the instrument in all cases a pervious tube. The complete instrument,—that is, with funnel shaped plug infixed — is used in exploring the signs obtained through the medium of the voice and the action of the heart, the other modification—or with the stopper removed—is for examining the sounds communicated by respiration. This instrument I commonly designate simply the *Cylinder*, sometimes the *Stethoscope*."

Clinical Reports

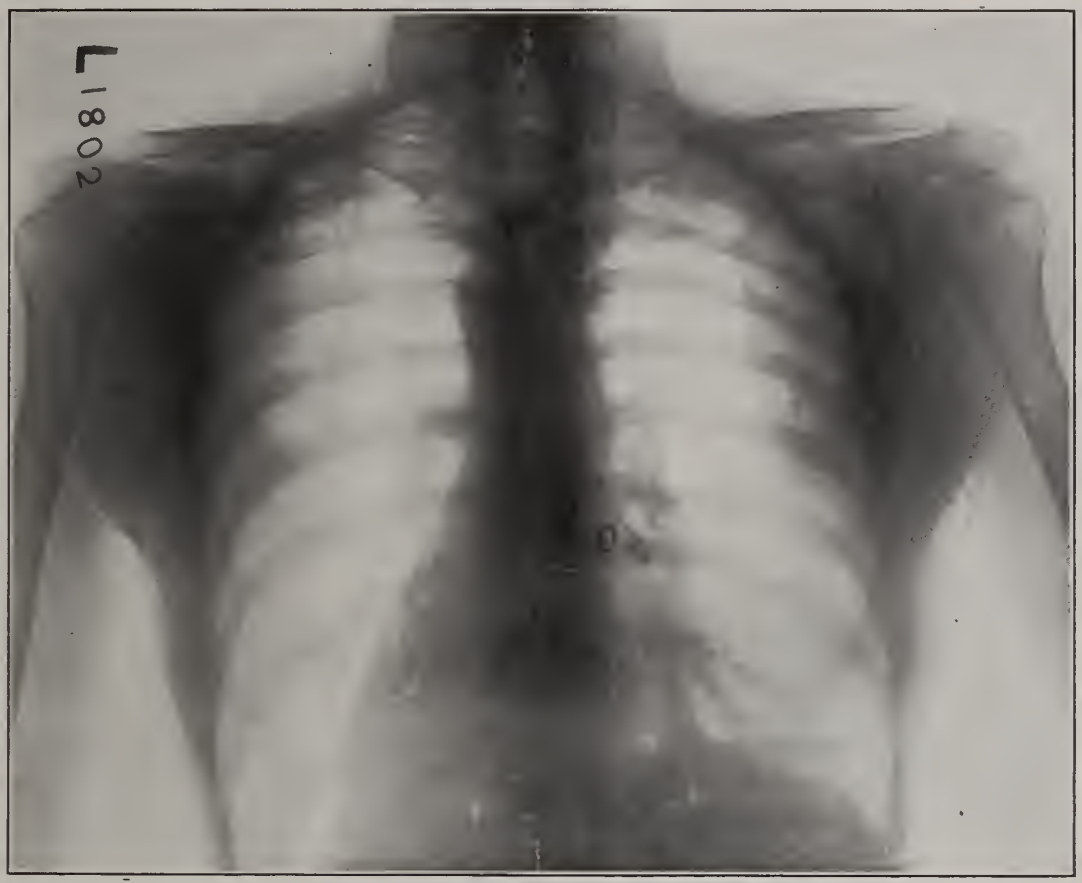
FOREIGN BODY IN RIGHT INFERIOR BRONCHUS; REMOVAL BY USE OF THE BRONCHOSCOPE.

By ELBYRNE G. GILL, M. D., Roanoke, Va.

Patient, Ida F., age 50, was referred to me February 19th, 1920, by Dr. B. L. Taliaferro, of Catawba Sanatorium.

Patient gave the following history: Seven years ago she was struck in the left temporal region by an axe, which rendered her unconscious. Since that time at various intervals she has been subject to attacks of epilepsy. Five years ago during an epileptic seizure, patient fell and struck her head upon a cement floor. A false plate of teeth was broken and a small portion of the plate was never found but the patient and her family dismissed it as being lost. Shortly following the accident the patient began having an itching and tickling sensation in her throat which gradually developed into a cough and became steadily worse, more so at night. Eighteen months after this injury the patient was bending over in order to clean out a springhouse and at this time had a hemorrhage. She has had hemorrhages at various intervals since, but only when stooping over. Last fall, the patient's chest was X-rayed at the Catawba Sanatorium, Virginia, and the presence of a foreign body was discovered in the right bronchus. She was then questioned as to the history of having aspirated a foreign substance into her lung and recalled that she had broken her false plate five years before and that a small portion of it was lost at the time of the accident.

I referred the patient to Dr. J. T. McKinney, of this city, for further X-ray examination and the following is Dr. McKinney's report: "Stereoroentgen examination, with antero-posterior and postero-anterior plates of Ida F.'s chest shows a foreign body more or less oblong in shape, about one and one-fourth cm. by one cm. in size, lying obliquely in the inferior or descending branch of the right bronchus. The foreign body is lying opposite the 9th rib, using posterior markings, and opposite the 4th interspace using anterior markings. There is considerable pathology noted at the base of the right lung, involving to some extent the parenchyma of the lung, a few small emphysematous areas being present. There is a marked peribronchial thickening



and fibrosis of the branches of the descending bronchi. The possibility of there being a few adhesions around this foreign body should be taken into consideration. No definite areas of tuberculous infiltration are seen in either lung."

The following is the report of Dr. B. L. Taliaferro, physician in charge of Catawba Tubercular Sanatorium, Va.: "On admission to the Sanatorium she gave her history as follows: Usual diseases of childhood; good recovery. Has had hay fever, otherwise negative. Was perfectly well until five years ago. Illness began with tickling in throat, bad cough, profuse expectoration, small hemorrhages, loss of strength, night sweats with moderate rise of temperature at times. This patient was diagnosed as having tuberculosis and was admitted to Mt. Regis Sanatorium. I have no record of her exact stay at Mt. Regis but I think it was at least three weeks. She was then admitted to Catawba Sanatorium April 2, 1919. Physical examination showed a few fine rales in right apex with slight broncho-vesicular breathing and slight increased whispered fremitus with dullness. In the right back she had a few scattered rales from the third to the sixth dorsal spine. On admission, her sputum showed positive Gaffky two. The day after admission she had a pulmonary hemorrhage of about a dram of blood. She continued from time to time to have heavy streaks or slight hemorrhages, none of which exceeded an ounce during her stay here. Cough severe and expectoration profuse in the morning. During the rest of the twenty-four hours, cough and expectoration slight. She had several convulsions which were probably epileptic in character. This patient was kept in bed almost continuously on account of her tendency to hemoptysis. Her symptoms did not appear to improve after severarl months' continued rest in bed but on the other hand her expectoration increased in amount. The profuse expectoration and the slight physical findings led us to believe that possibly this patient had a deep-seated cavity or a bronchiectasis and she was advised to have stereoscopic X-ray plates tak-

en. The X-ray showed a foreign body in the right lung behind the fifth rib. This body appeared to be something over a half of an inch in diameter and gave the appearance of possibly being a flattened bullet of about a thirty-two caliber. On close questioning the following facts were brought out which the patient did not give in the history on admission. She said that about seven years ago she was walking behind a man who was cutting wood and was accidentally struck over the right eye by the pole of the axe. Since that time she had been subject to fainting spells which we had diagnosed as epilepsy. And that about five years ago in one of these attacks she crushed her plate of false teeth. After the attack was over she felt as if a part of this plate had lodged in her wind pipe and that her cough and expectoration dated from about that time. Repeated examinations of her sputum were constantly negative except the first examination which was made on admission. The patient was advised to have an operation performed to have this foreign body removed."

On February 29th, 1920, I sent the patient to the Lewis-Gale Hospital, and on March 1, 1920, under ether anesthesia, I removed the foreign body from the right inferior bronchus. Time of the operation was ten minutes. I used the Jackson Adult Bronchoscope and Jackson's Alligator Rotation Forceps for extracting the foreign body. The adhesions surrounding the foreign body were very adherent and when the foreign body was pulled away a slight hemorrhage followed. I am greatly indebted to Dr. J. T. McKinney for his accuracy in locating this foreign body and for the skillful manner in which he used the fluoroscope at the time of the operation. Patient had a slight hemorrhage following the operation, also a slight elevation of temperature for two days. Since that time her recovery has been uneventful and complete. The uncontrollable cough from which the patient suffered for the past five years disappeared the second day following the operation, not to return.

MacBain Building.

SCLERODERMA AND COMBINED SCLEROSIS OF THE SPINAL CORD.*

By D. R. MURCHISON, M. D., Richmond, Va.

This case is being presented chiefly because of the interesting combination of two rather unusual conditions.

The patient is 45 years of age and single. His family and personal history are unimportant, but it may be said that there is no history of nervous or mental disease in the family, and the patient denies luetic infection.

The onset of the present illness began in the autumn of 1915, following an attack of grippe, which was acquired during exposure to very severe weather. At the time he was working as construction foreman for the government near Pittsburgh, and had been very thoroughly examined by the government physician about six months before, the physician remarking then that the patient was an unusually good specimen of man and appeared in perfect health. This examination is said to have included tests of his reflexes. About two weeks after recovering from the grippe, the patient began to feel a weakness in his hips and legs, with a good deal of fatigue on slight exertion. The weakness was most noticeable in walking up the steps, and he continued to have it in spells of a few days or weeks, with intervals of the same duration, in which he was quite free from symptoms. As the year passed, there seemed to be a tendency for the weakness to improve, and he thought he was getting well when his hands began to swell.

This appeared just about a year after his attack of grippe; the swelling, attended by pitting on pressure, persisted for six months, during which time he had some numbness in his hands and also a stinging sensation, especially on touching things, when there was a feeling of burning. Finally, the swelling began to subside, and then the skin of his entire head, trunk and arms became stiff and tight, associated with an intense brownish pigmentation diffusely spread over all the involved area with the exception of his face. This tightness and pigmentation developed rather slowly, but became very extensive, the tightness making all motion of the joints involved quite difficult, even including motion of his jaw in eating. He soon went to Mercy Hospital, Pittsburgh, where a diagnosis of scleroderma was made. From his account, it seems that he was given a glandular extract which he continued to take for about three months. There seemed to be little change in the skin condition until 18 to 12 months ago, since when there has been great improvement leaving him at present with his wrists and hands as the only grossly involved areas, and

* Read before Richmond Academy of Medicine and Surgery, April 13, 1920.

a faded, light brown, macular rash over his abdomen and chest.

On the appearance of the swelling of the hands, the weakness in his hips and legs returned and increased gradually, attended by some loss of control of his legs, making him dependent first on one cane, later on two, and now permitting him to walk only short distances with the greatest dirfficulty. For the past year or more, he has had a feeling of constriction, or girdle sensation, about his waist, which also extends down both legs, described by him as if his trousers were pressing too tightly on his waist and legs. There has been an occasironal tingling srensation down the right arm during the past 8 months; he admits greater difficulty in walking in the dark; there has been a loss of libido and potentia since the onset; control of the urinary and rectal sphincters has been disturbed, but not entirely lost, amounting chiefly to inability to completely empty his bladder or rectum, or perhaps to delay in starting the act.

About a year ago, while taking a short walk, he had a sudden and complete remission of all difficulty in walking, which, however, unfortunately lasted only through the length of one block. After reaching that distance, his disturbance returned as it had been before, and has never disappeared since, although it is favorably influenced by good weather. It is also important to emphasize that he has had no pains in or about the spinal column nor any spinal root, or lightning pains. Besides the tingling and numbness mentioned above, his only sensory symptom has been a dull pain or aching over the supra-pubic region extending through to the sacrum.

Only the positive and negative points of interest in the physical examination will be included. The skin over the face is somewhat atrophied and feels a little hardened, but still may be picked up in small folds between the fingers. Palpation here and over the arms, trunk and legs gives the impression of induration of the subcutaneous tissues rather than the skin itself. There is the faded macular rash over the abdomen and chest mentioned in the history. On the dorsum of both wrists and hands the skin is tense and shining or atrophied to a greater extent than on the face. Except for the fingers, where the skin itself is indurated, the underlying tissue is more involved. Most of the fingers are intensely hard, flexed, and show greater or less limitation of motion in their joints. There is, or has been from time to time, ulceration about the knuckles, which is reported as characteristic, and there is a slight diffuse brownish pigmentation of the two hands.

Examination of the eyegrounds reveals a lack of distinctness of outline of the upper-mesial quadrant on both sides, with a definite pallor of the same quadrant, this being more marked in the left eye than the right. The retinae and vessels appear normal.

There is slight impairment of hearing the tick of a watch in both ears.

There are frequent intermittences in the heart beat, which the patient says have existed since childhood.

Rectal examination is negative.

The knee-kicks are very much exaggerated on both sides, resulting in several clonic jerks by a light stroke with the reflex hammer. The ankle-jerks are just obtained with the patient in an ideal position. Babinski and Oppenheim reflexes are readily and typically elicited on both sides. There is a well maintained bilateral ankle-clonus, but no patella-clonus.

There is a loss of muscle-sense in toes, ankles and, to less extent, in the knees. The patient is unable to perform the knee-to-toe movement with the heel of the opposite foot. The abdominal reflexes can nowhere be obtained, while the cremasteric is normally active. The patient sways and would fall, if allowed to, when standing with his eyes closed or look at the ceiling. There is a marked hypertonicity of both lower limbs. Testing the muscle power of the legs, it is found that the patient cannot voluntarily flex with any power or against much resistance the thighs on the trunk. This is more marked on the right than on the left side. Dorsal flexion of the feet is also impaired. The power in the triceps of the arms is poor, as is also that of the extensors of the hands. The gait is spastic, with a dragging of the toes, and walking with a wide base.

In testing the sensory system, the only disturbance noted is in the thighs, legs and feet. There is some hyperaesthesia to a pin-prick over this entire area, although the patient cannot localize the stimulus when applied below the knee, and poorly even in the thighs. Touching or rubbing with a camel's hair

brush produces no sensation in the right leg, up to just above the knee, and in the left to a level just below the knee. Over this area of anaesthesia, he cannot distinguish between heat and cold. His tactile- and heat-sense are impaired, though not completely lost in the thighs up to the buttocks behind and the symphysis in front. He cannot feel the vibrations of a tuning-fork, applied on the skin or on the prominent bony points like the tibiae or iliac crests or sacrum behind. The lowest level in front in which he is sensitive to the tuning fork is the ribs, and behind about the tenth rib, with diminution of the sensation over the spine as high as the mid-scapular region. He can, however, feel the vibration very distinctly on the scapulae.

The following are the important negative points. The pupils are normal. There is no nystagmus, intention tremor, scanning speech, fibrillary twitching, or atrophy of muscles. The prostate is normal. There is no deformity, limitation of motion or pain on deep pressure or percussion over the spines.

All the laboratory findings are negative, essentially, with the exception of a very faint trace of albumin in the urine, which probably is of no importance. Red blood corpuscles, 5,250,000; hemoglobin, 100% (Sahli); white blood corpuscles, 7,350; polymorphonuclear neutrophiles, 71%. Stools show no parasites or ova. Blood-Wassermann is negative. It has been quite impossible to obtain permission to do a lumbar puncture, and while this is the most important of all tests, it is the only one consciously omitted. To do him justice, it should be said that he has a good reason for postponing this procedure now.

While it is surely possible that the nervous lesion is luetic in character, it is felt that this is as unlikely as it is ever safe to say without the desired laboratory information. I should like to say here that the lack of information of the spinal fluid contents made me hesitate to present this case before the Academy, but finally decided to do so only after consultation and approval by one member of the program committee.

In conclusion, it seems plausible that in addition to scleroderma which has left only a residue, the patient has combined sclerosis of the spinal cord.

301 *East Franklin Street.*

Discussion.

Dr. B. R. Tucker thinks that at first there was probably incomplete transverse myelitis which led to the combined sclerosis, both being dependent upon the preceding influenza. It is rare to see a spinal cord affection like this combined with anything else. Though the spinal fluid might prove negative, it is a pity that it is not available for examination for the possibility of spinal-cord tumor may not be dismissed without it. It is not absolutely essential to find pain accompanying these tumors, especially in the beginning. Developing slowly, we might find all of the symptoms noted.

Dr. C. C. Coleman gathered from the report that there was a Brown-Sequard lesion. Pallor, unless pronounced, has no decided bearing on multiple sclerosis. Under the circumstances, spinal-cord tumor is as good a diagnosis as can be made.

Dr. R. F. Gayle: We frequently see cases of disseminated sclerosis without the classical symptoms of marked tremor, nystagmus, scanning speech, etc. The thing that struck me particularly in this case, diagnosed combined sclerosis, is that in these cases the lesions of the posterior column of the cord generally predominate, whereas, in this case the lesions of the lateral and pyramidal tract seem to predominate. In most of the cases of combined sclerosis that I have seen, there has been a change in the blood picture, either a severe secondary anemia or a pernicious anemia.

Dr. J .M. Hutcheson saw the patient two and a half or three years ago, when he presented an example of typical scleroderma. Looking over his notes, made at the time, he found he had noted the presence of ankle clonus, which he did not attempt to explain. He said that he sees scleroderma very seldom, and that it is stated to be frequently secondary to other diseases with improvement unusual.

Dr. Murchison, closing the discussion, said: While combined sclerosis has seemed the more probable diagnosis, spinal cord tumor has to be borne in mind; and I have felt, furthermore, that in the event the patient goes North for a prolonged stay and treatment, which he has under consideration, an exploratory laminectomy might be suggested merely on the basis of the present findings, of course after certain other investigations have been carried on, principally lumbar puncture and X-ray. Finally, I should like to repeat and emphasize a point made by Dr. Hutcheson. While scleroderma is certainly rather unusual itself, it is distinctly more unusual to have such definite and marked improvement take place as has occurred in this patient.

The Frank S. Betz Company,

Hammond, Ind., which has heretofore operated on a direct mail order business, has purchased the entire stock and business of the Crown Surgical Instrument Company, of New York City, and has recently opened a complete exposition and sales room at 6 and 8 West 48 Street, that city.

Proceedings of Societies

Richmond Academy of Medicine and Surgery.

At the regular bi-weekly meeting, held on April 13, 1920, Dr. J. Garnett Nelson, president, in the chair, Dr. H. A. Brady read a paper entitled *Etiology and Diagnosis of Renal Hematuria*, which was discussed by Drs. W. S. Gordon, J. M. Hutcheson, W. A. Porter and Brady.

Dr. D. R. Murchison reported a case of *Scleroderma and Combined Sclerosis of the Spinal Cord*,* which was discussed by Drs. B. R. Tucker, C. C. Coleman, R. F. Gayle, J. M. Hutcheson, and Murchison.

Dr. Thos. W. Murrell reported the following case of *Chancre Redux*:

The patient, a young man, was seen in November, 1919, three weeks after exposure, presenting a sore on the frenum. Dark-field examination showed spirochetes. Arsphenamine was immediately given, followed by five other doses at intervals. Mercury was given subsequently. Up to this time the history of the case was the usual one. Two weeks later, a Wassermann was positive. Subsequent to this, a second sore, a typical chancre, appeared near the other, but a half-dozen dark-field examinations failed to show the presence of spirochetes or other organisms. Another course of six injections was given, but the sore only grew larger.

In 1753, John Hunter wrote that frequently large sores that got no better under antisyphilitic measures were to be found near the primary sore, and that other remedies must be used. In the case under discussion, black wash finally effected a cure, the resulting scar resembling that of a burn.

Dr. Campbell Harris was unanimously elected to Fellowship.

MARK W. PEYSER, M. D.,
Secretary.

Rockingham County (Va.) Medical Society.

A meeting of the Rockingham County Medical Society was called for April 3, 1920, at 10:30 A. M., which, owing to the war and various epidemics, was the first meeting of this society since 1917. The meeting opened with a large attendance and considerable enthusiasm. Four new members were admitted and the following officers were elected: President, Dr. J. E. Lincoln, Lacey Spring; recording secretary and treasurer, Dr. A. C. Byers (re-elected), Harrisonburg; corresponding secretary, Dr. G. V. Wood, Jr., Harrisonburg.

On account of the high cost of living, the advisability of increasing fees was discussed, and it was decided to call another meeting to agree on a fair increase. At this called meeting, it was decided to increase all fees 33 1-3 to 50 per cent. Mileage was fixed at seventy-five cents per mile.

Meetings are held monthly in the Chamber of Commerce Building in Harrisonburg.

G. V. WOOD, JR.,
Corresponding Secretary.

Northampton County (Va.) Medical Society.

The regular quarterly meeting of this society was held at Nassawadox, April 21, with a good attendance. Dr. J. McF. Dick, of Salisbury, Md., was present and read an interesting paper on "Cholelithiasis". There were also several interesting papers by local members.

The following officers were re-elected: President, Dr. William J. Sturgis, Franktown; vice-president, Dr. B. H. Gilmer, Cape Charles; secretary-treasurer, Dr. Holland Trower, Eastville; censor, Dr. Carlisle Nottingham, Cape Charles.

After the meeting, the members and their invited guests enjoyed their annual banquet.

HOLLAND TROWER,
Secretary.

The Augusta County (Va.) Medical Association, Inc.,

Held its bi-monthly meeting in Staunton, April 7, Dr. J. B. Rawlings, presiding. Papers were read by Dr. H. F. White, Fishersville, on "Psychology of the Soldier", and by Dr. Alex. F. Robertson, Staunton, on "Nephritis". After discussion, it was decided to raise annual dues to the association from $1 to $2.

This society is in a flourishing condition, with a membership of about forty-eight.

C. C. JONES,
Secretary.

* For paper and discussions, see page 74.

The Mecklenburg County (Va.) Medical Society

Held its regular meeting in Clarksville, April 16, at Hotel Grace. The attendance was small, but those present had the pleasure of hearing a most interesting talk by Dr. J. W. Henson, of Richmond, his discussion covering much original work. Dr. G. B. Barrow, Clarksville, vice-president, presided. Other officers are president, Dr. A. T. Finch, Chase City, and secretary, Dr. John Drake, Jr., Clarksville. Refreshments were served the doctors at the close of the meeting.

Lee County (Va.) Medical Society.

The secretary of the Lee County Medical Society informs us that his county society is now a thriving, live and wide awake society with about all the doctors in that county enrolled as members. Present officers of the society are: President, Dr. C. C. Pearce, Pennington Gap; vice-president, Dr. J. B. Muncy, Jonesville, and secretary-treasurer, Dr. P. D. Pence, St. Charles. Meetings are held monthly.

The Southwestern Virginia Medical Society

Will hold its regular spring meeting on May 26 and 27 in Roanoke. An interesting program has been prepared, this to include a few papers by invited guests and others by members. A contribution supper is planned for the evening of the 26th.

This Society was reorganized in Pulaski, December 10, 1919, so as to become an integral unit of the Medical Society of Virginia. There are thirty-seven charter members and the following are officers: President, Dr. W. R. Cushing, Dublin; vice-president, Dr. J. A. Noblin, East Radford, and secretary-treasurer, Dr. A. B. Greiner, Rural Retreat. Active members of this organization are residents of Montgomery, Pulaski, Wythe, Smyth and Washington Counties, and the cities of Radford and Bristol. Active members of other component societies of the Medical Society of Virginia will be elected to associate membership.

New Member Of Pharmacy Board.

Governor Davis, on April 22, appointed C. D. Clark, druggist, of Portsmouth, to fill a vacancy on the Virginia State Board of Pharmacy, caused by the retirement of John E. Jackson, Tazewell, Va.

Public Health Department

In The Tuberculosis Field.

In this department of the VIRGINIA MEDICAL MONTHLY last month, facilities available for hospitalization of tuberculosis patients in Virginia were discussed. It was thought advisable to put before physicians of the State some statement of beds available for sanatorium care of their tuberculosis patients, before venturing upon any discussion of the many phases of the tuberculosis problem, a problem touching, as it does, health work at every turn.

In this paper is presented a little work by Dr. John B. Hawes, II, Secretary of the Trustees of the Massachusetts Hospitals for Consumptives, on the early diagnosis of pulmonary tuberculosis. We might as well recogniże, without quibbling, that in the successful treatment of pulmonary tuberculosis we must first catch our case in its incipiency; just as that famous authority on rabbit stews first laid it down as a necessary prerequisite to a successful rabbit stew that one must first catch the rabbit. Not until recent years has emphasis been put on tuberculosis, nor a great deal of instruction been given in the diagnosis of this well-nigh universal disease. It is hoped that Dr. Hawes' admirable little pocket note book will be of general interest among readers of the Journal. It was prepared for the Massachusetts Board of Health for free distribntion.

In his introductory remarks, Dr. Hawes states that the importance of early diagnosis of tuberculosis has been emphasized very strongly during the past few years. With the advent of the municipal dispensaries, the opportunity for the detection of many cases of this disease which would otherwise escape attention is apparent. That in this physicians are desirous of doing their best is evident from their request for a short but comprehensive statement of the main points that must be constantly borne in mind, if success is to be attained in the difficult problem of the early diagnosis of this insidious disease.

In the form of a "Physicians' Pocket Note Book," Doctor Hawes, discussing diagnosis in adults, gives the following suggestions:

1. Take a careful history of your patient. Ask definite questions in a logical and regular

sequence. Every patient should be asked whether during the years from 15 to 21 he considered himself or was considered by his parents, as of the strong and robust type, the thin and wiry type, or the delicate type. It is important to ask, not, "When did you first feel sick?" but rather, "When did you last feel perfectly well?"

2. Remember the paramount importance of constitutional signs and symptoms.

In most cases, except for a cough, which is usually present, the constitutional signs and symptoms are far more striking than local symptoms.

3. Remember that loss of weight must be satisfactorily explained.

Every patient should be asked, first, "What is your maximum weight?" second, "Your present weight?" third. "What do you consider good average weight in health?" fourth, if the patient has lost weight, "Over how long a period has this loss taken place, and how do you account for it?"

4. Inquire concerning loss of strength and energy.

5. Do not forget the importance of undue fatigue.

6. Continual or occasional evening fever must be explained. The thermometer is not used anyway nearly as much as it should be. In the absence of other definite causes, if a patient is found to be running an afternoon or evening fever of 99 degrees or over, a tentative diagnosis of some such infection or toxemia as tuberculosis is justifiable. Keep thermometer in the mouth at least five minutes.

7. Remember the importance of a subnormal temperature accompanied by a high pulse. This combination is an important one and is often caused by tuberculosis.

8. Remember that a hemorrhage is evidence of pulmonary tuberculosis until the contrary is proved. Failure to observe this rule is causing many tragedies and unnecessary deaths.

9. Bear in mind that pulmonary syphilis is not so uncommon as it is supposed to be. The State Board of Health makes the examination free.

10. Remember that early cases of exophthalmic goitre may simulate early pulmonary tuberculosis in every way.

11. Depend more on your thermometer, your history and constitutional signs and symptoms than you do on percussion and auscultation.

12. Remember to use your common sense. Bear in mind that it is a human being, and not merely a pair of lungs that you are dealing with.

Don't forget the following, Dr. Hawes continues:

1. Don't be in too much of a hurry.

2. Don't forget to strip the patient to the waist.

3. Do not expect to find marked signs in the lungs in every case.

4. Do not wait for a positive suptum. Absence of proof is not proof of absence.

5. Don't forget that practically all pleurisies, wet or dry, of idiopathic origin, are tuberculous.

6. Don't forget to look elsewhere than the lungs. Make your routine physical examination as thorough as possible.

7. Don't base your diagnosis on X-ray evidence alone. The X-ray is a valuable adjunct to our means of physical examination; it should never take the place of our older, well-known methods.

8. In adults, do not place any value on the skin tuberculin test, whether positive or negative.

9. Don't forget that chronic bronchitis, influnza, bronchiectasis, emphysema, asthma, and other chronic and subacute conditions still exist and will continue to exist, and that they often resemble pulmonary tuberculosis.

10. Don't forget that the reverse of the above is also true.

11. Don't forget that people may be run-down, tired, weak, etc., without having consumption.

Consideration of Dr. Hawes' book leaves this thought: that perhaps what he says about the use of the thermometer might be emphasized.

While, of course, we see daily far advanced cases which show no elevation of temperature, in many cases it will be of great diagnostic value to keep a temperature chart for ten days, showing the suspect's temperature and pulse at two-hour intervals throughout the day, preferably; or at least at 7 A. M., noon, 4 P. M., and 7 P. M.

Next month it is hoped to present some ob-

servations on the sessions of the National Tuberculosis Association, which meets in St. Louis, Mo., April 22nd, 23rd and 24th.

B. L. Taliaferro.

Medical Education

ESSENTIALS OF AN ACCEPTABLE MEDICAL COLLEGE.*

1. The minimum requirement for admission to an acceptable medical college is a four-year high school education or its full equivalent and two years of work in a college of arts and sciences approved by the Council on Medical Education are as follows:

1. High School Requirements

(*a*) For admission to the two-year premedical college course, students shall have completed a four-year course of at least fifteen units in a standard accredited high school or other institution of standard secondary school grade, or have the equivalent as demonstrated by examinations conducted by the College Entrance Examination Board, or by the authorized examiner of a standard college or university which has been approved by the Council on Medical Education. A detailed statement of attendance at the secondary school, and a transcript of the student's work, should be kept on file by the college authorities. This evidence of actual attendance at the secondary schools should be obtained, no matter whether the student is admitted to the freshman or to higher classes.

(*b*) Credits for admission to the premedical college course may be granted for the subjects shown in the following list and for any other subject counted by a standard accredited high school as a part of the requirements for its diploma, provided that at least eleven units must be offered in Groups I-V:

SCHEDULE OF SUBJECTS REQUIRED OR ACCEPTED FOR ENTRANCE TO THE PREMEDICAL COLLEGE COURSE.

Subjects	Units*	Required
Group I, English—		
Literature and composition	3-4	3
Group II, Foreign Languages—		
Latin	1-4	2†
Greek	1-3	
French or German	1-4	
Other foreign languages	1-4	
Group III, Mathematics—		
Elementary algebra	1	1
Advanced algebra	½-1	..
Plane geometry	1	1
Solid geometry	½	..
Trigonometry	½	..
Group IV, History—		
Ancient history	½-1	1
Medieval and modern history	½-1	
English history	½-1	
American history	½-1	
Civil government	½-1	
Group V, Science—		
Botany	½-1	..
Zoology	½-1	..
Chemistry	1	..
Physics	1	..
Physiography	½-1	..
Physiology	½-1	..
Astronomy	½	..
Geology	½-1	..
Group VI, Miscellaneous—		
Agriculture	1-2	..
Bookkeeping	½-1	..
Business law	½	..
Commercial geography	½-1	..
Domestic science	1-2	..
Drawing, freehand and mechanical	½-2	..
Economics and economic history	½-1	..
Manual training	1-2	..
Music: Appreciation or harmony	1-2	..

*A unit is the credit value of at least thirty-six weeks' work of four or five recitation periods per week, each recitation period to be not less than forty minutes. In other words, a unit represents a year's study in any subject in a secondary school, constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty-minute hours, or their equivalent.

† Both of the required units of foreign language must be of the same language, but the two units may be presented in any one of the languages specified.

Of the fifteen units of high school work, eight units are required, as indicated in the foregoing schedule; the balance may be made up from any of the other subjects in the schedule.

2. Premedical College Course

(*c*) The minimum requirement for admission to acceptable medical schools, in addition to the high school work specified above, is sixty semester hours of collegiate work in a college approved[7] by the Council on Medical Education. The subjects included in the two years of college work should be in accordance with the following schedule:

SCHEDULE OF SUBJECTS OF THE TWO-YEAR PREMEDICAL COLLEGE COURSE.

Sixty Semester Hours* Required	Semester Hours
Required Subjects:	
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English composition and literature (d)	6
Other nonscience subjects (e)	12
Subjects Strongly Urged:	
A modern foreign language (f)	6-12
Advanced botany or advanced zoology	3-6
Psychology	3-6
Advanced mathematics, including algebra and trigonometry	3-6
Additional courses in chemistry	3-6
Other Suggested Electives:	
English (additional), economics, history, sociology, political science, logic, mathematics, Latin, Greek, drawing.	

*A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be not less than fifty minutes net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

* From "Choice of a Medical School," issued by American Medical Association.

7. A tentative list of approved colleges may be obtained on application.

SUGGESTIONS REGARDING INDIVIDUAL SUBJECTS

(*a*) *Chemistry.*—Twelve semester hours required of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work. In the interpretation of this rule work in qualitative analysis may be counted as general inorganic chemistry. The remaining four semester hours may consist of additional work in general chemistry or of work in analytic or organic chemistry. After Jan. 1, 1922, organic chemistry will be required.

(*b*) *Physics.*—Eight semester hours required, of which at least two must be laboratory work. It is urged that this course be preceded by a course in trigonometry. This requirement may be satisfied by six semester hours of college physics, of which two must be laboratory work, if preceded by a year (one unit) of high school physics with laboratory work.

(*c*) *Biology.*—Eight semester hours required, of which four must consist of laboratory work. The requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone. This requirement may also be satisfied by six semester hours of college biology, including three semester hours of laboratory work, if preceded by a year (one unit) of high school biology or zoology with laboratory work.

(*d*) *English Composition and Literature.*—The usual introductory college course of six semester hours, or its equivalent, is required.

(*e*) *Nonscience Subjects.*—Of the sixty semester hours required as the measurement of two years of college work, at least eighteen, including the six semester hours of English, should be in subjects other than the physical, chemical or biologic sciences.

(*f*) *Foreign Language.*—A reading knowledge of a modern foreign language is strongly urged. French and German have the closest bearing on modern medical literature. If the reading knowledge in one of these languages is obtained on the basis of high school work, the student is urged to take the other language in his college course. It is not considered advisable, however, to spend more than twelve of the required sixty semester hours on foreign languages.

Recognition.—This two-year premedical course in both quantity and quality must be such as to make it acceptable as the equivalent of the first two years of the course in reputable, approved colleges of arts and sciences leading to the degree of Bachelor of Science.

3. APPROVED COLLEGES OF ARTS AND SCIENCES.

A tentative list of colleges of arts and sciences approved by the Council on Medical Education has been prepared, and revisions of this list will be published from time to time. By an approved college (of arts and sciences) is meant one whose standing has been vouched for by some standardizing agency in whose methods the Council has confidence. To be recognized a college must have sufficient scientific equipment and maintain laboratories in the premedical sciences. It must have ample endowment to maintain a sufficient corps of teachers. Membership in some national organization or association of colleges will be favorably regarded by the Council and, in the absence of such membership, careful investigation will be made of the causes of exclusion. It must also maintain national standards for admission to its freshman class. Students must be required to complete a four-year high school course, and the requirements for admission to the premedical course must be no less that the requirements for admission to the regular B. S. course of the college.

Particular attention will be given to the character of high schools from which certificates are received. Colleges should recognize only certificates from high schools approved by commissions or boards of associations of colleges and secondary schools or other agencies approved by the Council. When such endorsement is lacking the college should be slow in accepting certificates without the support of entrance examinatons. Undue liberality in the acceptance of certificates from secondary schools unendorsed by approved standardizing agencies will be registered by the Council as a failure to comply with its requirements and the college will be dropped from the approved list.

PREMEDICAL COURSES IN MEDICAL COLLEGES—JUNIOR COLLEGES

Premedical college courses given in or by

medical schools, or advance years taken in high schools, will not be considered as acceptable unless they have been investigated and approved by some association of colleges and secondary schools or other approved agency having to do with the standardizing of liberal arts colleges, and unless they are found to be a full equvalent of the first two years of the course leading to the Bachelor of Science degree.

4. The Medical School

ADMINISTRATION OF ENTRANCE REQUIREMENTS

2. The admission of students to the medical school must be in the hands of a responsible committee or examiner whose records shall always be open for inspection. Documentary evidence of the student's preliminary education should be obtained and kept on file. When the medical school is an integral part of the university, this work usually devolves on the university examiner. Unless the university examiner and his records are closely accessible, however, some officer at the medical school should obtain and keep on file documentary evidence of each student's preliminary education, including both high school and collegiate work. It is particularly important that the records show that the required amount of work in the premedical sciences, including laboratory exercises, has been completed.

OTHER MEDICAL SCHOOL REQUIREMENTS

3. The college should require that students be in actual attendance in the college *within the first week* of each annual session and thereafter.

4. Actual attendance at classes should be insisted on except for good cause, such as for sickness, and no credit should be given for any course where the attendance has been less than 80 per cent. of the full time.

5. (*a*) Full advanced standing may be granted to students only for work done in other acceptable medical schools and in granting advanced standing there should be no discrimination against the college's full-course students. Official verification of the student's previous medical work should be obtained by direct correspondence with the college previously attended, and his preliminary qualifications should also be verified and recorded the same as for freshman students. (*b*) In *exceptional cases*, students who possess the required premedical qualifications and who have completed three or more years of work in Class B medical schools may be given adanced stanvding, but not higher than *entrance* to the third year (junior) class, and no credit should be given in any subject except on recommendation of the head of the department teaching that subject. (*c*) In *exceptional cases* also students who possess the required premedical qualifications and who have completed three or more years of work in Class C colleges may be given advanced standing but not higher than *entrance* to the second year (sophomore) class, and then only after thorough examinations in all first year subjects have been passed.

(To Be Continued.)

Analyses, Selection, Etc.

The Community Without A Physician.

The plight of the small, isolated community which has no medical attention is particularly trying at all times, but especially so during an epidemic, such as that which recently swept the country. At such times it is not unusual for many persons to be ill, and even to die, without once being visited by a physician, nurse, or other person skilled in the care of the sick.

The Wisconsin State Board of Health is frequently in receipt of communications from bereaved parents and relatives, telling of their inability to obtain the services of physicians during the fatal illness of members of their families. Sometimes, too, a decided spirit of vindictiveness, for which the holder can scarcely be blamed, is manifested. It is not cheering to read such letters, for the writers are invariably convinced that timely medical advice and attention would have saved the lives of their loved ones. The writers of many of these letters are distinctly at a loss to understand why skilled physicians are not made available for all localities, regardless of their remoteness. They feel that the State should, when necessary, subsidize physicians and nurses so that no one shall suffer unnecessarily because of his living in an unfortunate geographic location.

Properly to provide for the medical and surgical care of people in isolated places would manifestly impose an exceedingly heavy burden on the State. Moreover, the persons in the more thickly populated districts would probably be unfairly taxed for the care of those in sparsely settled places. It is a difficult matter to induce a physician to undertake the practice of medicine in any thinly settled section, for the work is unusally difficult and the compensation small. Unless, therefore, some special enducement is offered, it is evidently impossible to secure the services of a skilled medical attendant in such a place.

Realizing, however, the urgent need for reliable and constant medical service, as well as appreciating the necessity for compensating adequately the physician who undertakes the work, at least one community in Wisconsin has approached the problem in a clear-cut, business-like manner. In their own words they have "decided to take the matter in their own hands."

The enterprising officials of a township in a county located in the extreme northwestern part of Wisconsin have evolved a plan whereby medical practice in their sparsely settled community will be made more attractive than has heretofore been possible. Already nearly every voter in the township has agreed to submit the proposition to a vote in the coming spring election. It is planned to levy a sufficient tax to provide an annual retainer of $1,000 for a physician who shall practice medicine and sugery in this locality. Futhermore, it is proposed to bond the township sufficiently to provide funds for the erection of a physician's residence, the cost of which shall not exceed $5,000. The physician will be permitted to reside in this dwelling and also to have his office therein without the payment of rent. A suitable garage and barn will also be provided.

In return for the annual salary of $1,000 and the rent-free residence, office, garage, and barn, the township board reserves the right to prescribe the fees which shall be collected by the physician. Tentatively the charge of $2 per call made within the township boundaries, together with mileage at the rate of 50 cents per mile traveled, has been set as the fee the physician shall collect. When a call is made outside the township the charge shall be $3, with the same mileage charge. However, $1 of each $3 fee so charged shall revert to the township treasury. Charges for confinements, operations, and other unusual attendance are to be made in accordance with the county medical society's fee schedule.

It is the intention of the officials in charge of the project to have the physician act as health officer and serve as medical attendant to the indigent supported by the township. He is also to serve as school physician, making a physical examination of the pupils at least once in three months during the school term. Futhermore, he is to advise the members of the board of health in professional matters.

The practical operation of the plan outlined by these enterprising township officials will be viewed with keen interest by public health officials, especially those charged with protecting the health of the people of Wisconsin. It is felt that the plan has many features to commend it, particularly the provision for a definite income to the physician while he is becoming established. Under a definite contract a position of this character should prove attractive to the young practitioner. Best of all it should insure compentent, reliable, and regular medical attention for the people who, through choice or necessity, are residing in comparatively remote sections of the country.

Editorial Note.—Of interest in this connection is the following extract from an editorial which appeared in the Boston Medical and Surgical Journal for March 25, 1920:

"There are many small communities throughout the country that are without physicians. Some which have come to our notice have been so for three years and are without any prospect of obtaining a practitioner. Such a condition is a calamity. How to secure adequate medical attention and at the same time have it efficient is the problem which is before these communities. Physicians cannot work without adequate compensation—just what that compensation must be depends upon the cost of living and the work required; but it is very doubtful if satisfactory medical service can be obtained unless the physician has an income of from $3,600 to $5,000 a year. Most communities can afford this amount.

"While we do not approve of a 'contract practice,' we do believe that communities that

are without medical attention should make a contract with a physician which should take the form of a guaranty of a certain salary for the year. He should be free to charge the regular fee, but if at the end of the year he has not collected the specified amount the deficiency should be made up to him. What would this mean to the community of perhaps 1,000 persons? A guaranty of $3,600 would mean $3.60 per year per individual, or, in round numbers, 30 cents per month, or 7½ cents per week. Any community can afford that sum. There are many capable young men who have just graduated from college who would be glad to enter into such an arrangement and who would do good work. The trouble at present is that communities wish the physicians to come to them and take all risks of making a living, regardless of the fact that larger communities usually offer better opportunities for success."

(By P. A. Surg. Robert Olesen, U. S. P. H. S., with Wisconsin State Board of Health—Public Health Reports, April 16, 1920.)

The Truth About Medicine

During March the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-Official Remedies:

Abbott Laboratories:
Elixir Barbital Sodium.
Antoine Chiris Company:
Barbital-Chiris.
Barbital Sodium-Chiris.
Gilliland Laboratories:
Schick Test (Gilliland).
Hollister-Wilson Laboratories:
Ampoules Corpora Lutea Soluble Extract—Hollister-Wilson.
Ovarian Residue—Hollister-Wilson.
Vitalait Laboratory of California:
Condensed Vitalait.

New and Non-Official Remedies.

Anesthesin-Calco.—A brand of benzocaine complying with the N. N. R. standards (see New and Non-official Remedies, 1920, p. 33). Calco Chemical Company, Boundbrook, N. J.

Gonococcus Vaccine (Polyvalent) (Gilliland).—A gonoccoccus vaccine (see New and Non-official Remedies, 1920, p. 283) prepared from a number of strains of **M. gonorrhoea** Neisser. Marketed in packages of four syringes containing, respectively, 250, 500, 1,000 and 2,000 million killed gonococci; also in packages of four 1 Cc. ampules containing, respectively, 250, 500, 1,000 and 2,000 million killed gonococci. The Gilliland Laboratories, Ambler, Pa.

Ovarian Residue—Hollister-Wilson.—The residue from the fresh ovary of the hog, after the ablation of the corpus luteum. It is used for the same conditions as the entire ovarian substance (see New and Non-official Remedies, 1920, p. 201) but is claimed to be somewhat more stable. Hollister-Wilson Laboratories, Chicago. (Jour. A. M. A., March 6, 1920, p. 675).

Phenacaine.—Holocaine hydrochloride. The hydrochloride of phenetidyl-acetphenetidine, a basic condensation product of part phenetidine and acetparaphenetidine. Phenacaine was first introduced as holocaine hydrochloride. It is a local anesthetic like cocaine, but having the advantage of a quicker effect and an antiseptic action. Five minims of a one per cent. solution when instilled into the eye are usually sufficient to cause anesthesia in from one to ten minutes.

Phenacaine-Werner.—A brand of phenacaine complying with the N. N. R. standards. Werner Drug and Chemical Company, Cincinnati, Ohio. (Journal A. M. A., March 27, 1920, p. 889).

Propaganda For Reform.

Green's Dropsy Remedy.—This "treatment is sold on the mail order plan and comes in the form of large balls or boluses, some smaller balls or boluses and, in some cases, includes "Tonic Tablets." The balls are taken, followed by substantial doses of magnesium sulphate. The A. M. A. Chemical Laboratory reports that the boluses, large and small, appear to contain powdered squill as their chief medicinal ingredient. The laboratory further reports that the "Tonic Tablets" contain an iron salt, probably dried ferrous sulphate, as the chief medicinal ingredient. Obviously, there must be no small amount of danger for a person in a dropsical condition to dose and drastically purge himself. The product is one that has no legitimate place among home remedies. (Jour. A. M. A., March 6, 1920, p. 692).

Stannoxyl.—On the assumption that tin workers were less troubled with boils than the average person, two French investigators proposed the use of tin compounds in the treatment of staphylococcus infections. Based on their work, a proprietary preparation—Stannoxyl—has been placed on the market with the claim that it is "composed of stannous oxid and specially purified metallic tin." Absurdly extravagant and unwarranted claims are made for the product. (Jour. A. M. A., March 6, 1920, p. 692).

Hepatola.—This was declared a fraud by the federal authorities in 1917, and the Hepatola Company was denied the use of the United States mails. It is still being sold in Canada. Hepatola is one of the many treatments claimed to remove gallstones. Analysis showed Hepatola to be the same old gallstone trick—that of giving the patient a large dose of some bland oil and following it up with a saline. The soapy concretions that are voided following this dosing are the "gallstones." Hepatola is essentially the same as "Fruitola" and "Mayr's Wonderful Stomach Remedy." (Jour. A. M. A., March 13, 1920, p. 752).

More Misbranded Drugs.—Boericke and Runyon's santonin and calomel tablets, acetanilid and quinin compound tablets, potassium iodid tablets, and morphin sulphate tablets did not contain the claimed amount of drug, and some aspirin tablets contained no aspirin. Sulferro-Sol was falsely claimed to cure pellagra, dyspepsia, indigestion, etc.

Santal Pepsin Capsules was falsely claimed to be a specific for all bladder trouble, gonorrhea, gleet, inflammation of the ovaries, rheumatism, Bright's disease and a number of other conditions. (Jour. A. M. A., March 20, 1920, p. 818).

Platt's Chlorides.—The Council on Pharmacy and Chemistry reports that Platt's Chlorides is inadmissible to New and Non-official Remedies because its composition is uncertain and indefinite, and because the claims made for it are exaggerated and misleading. The A. M. A. Chemical Laboratory analyzed a specimen purchased in 1911 and one purchased in 1919, and reports that while both contain aluminum salt and zinc chlorid, they differ considerably in composition and the latter contains a very small amount of mercuric chlorid. In the past, the advertising for Platt's Chlorides has suggested more or less directly that, as chlorinated lime (bleaching powder) may be made to give off chlorin gas which disinfects, so the air in a room may be disinfected by evaporating Platt's Chlorides. From the analysis of Platt's Chlorides it is evident that when the preparation is evaporated under ordinary conditions, only water vapor escapes. Whatever disinfecting or germicidal action the preparation may possess is exercised only when the solution is brought in direct contact with the substance to be disinfected. The aluminum and zinc salts present may be useful as deodorants, but they are not effective as germicides. The small amount of mercuric chlorid is hardly to be considered as materially increasing its efficiency. (Jour. A. M. A., March 27, 1920, p. 903).

Book Announcements

Pope's Manual of Nursing Procedure. By AMY E. POPE, Formerly Instructor in the School of Nursing, Presbyterian Hospital, New York, and author of several book for nurses. G. P. Putnam's Sons, New York and London. The Knickerbocker Press 1919. 596 pages. Illustrated. Cloth, price, $2.40.

Nervous and Mental Disease. By ARCHIBALD CHURCH, M. D., Professor of Nervous and Mental Diseases in Northwestern University Medical School, Chicago; and FREDERICK PETERSON, M. D., formerly Professor of Psychiatry, Columbia University. Ninth Edition, revised. Philadelphia and London. W. B. Saunders Company. 1919. Octavo of 949 pages, with 350 illustrations. Cloth, $7.50 net.

Text-Book Upon the Pathogenic Bacteria and Protozoa. For students of medicine and physicians. By JOSEPH McFARLAND, M. D., Sc. D., Professor of Pathology and Bacteriology, University of Pennsylvania. Ninth edition, revised. Philadelphia and London. W. B. Saunders Company. 1919. Octavo of 858 pages with 330 illustrations, a number of them in colors. Cloth, $4.75 net.

Modern Surgery, General and Operative. By JOHN CHALMERS DaCOSTA, M. D. Samuel D. Gross, Professor of Surgery, Jefferson Medical College, Philadelphia. Eighth Edition, Revised, Enlarged, and Reset with 1,177 Illustrations. Some of them in colors. Philadelphia and London. W. B. Saunders Company, 1919. Octavo of 1,697 pages. Cloth, $8.00 net.

The Diseases Of Infants and Children. By J. P. CROZER GRIFFITH, M. D., Ph. D., Professor of Pediatrics, University of Pennsylvania. Two octavo volumes totaling 1,542 pages, with 436 illustrations, including 20 plates in colors. Philadelphia and London. W. B. Saunders Company, 1919. Cloth, $16.00 net.

The After-Treatment Of Surgical Patients. By WILLARD BARTLETT, A. M., M. D., F. A. C. S., and collaborators. Vol. I. St. Louis. C. V. Mosby Company, 1920. 674 pages with 222 original illustrations and one color plate. 8vo. Cloth.

The After-Treatment of Surgical Patients. By WILLARD BARTLETT, A. M., M. D., F. A. C. S., and collaborators. Vol. II. St. Louis. C. V. Mosby Company, 1920. 391 pages with 213 original illustrations. 8vo. Cloth.

Bacteriology In Abstract. By A. B. WALLGREN, B. S., M. D., Assistant Professor of Biology, University of Pittsburgh; Author of Histology in Abstract and Pathology in Abstract. Pittsburgh, Pa. Medical Abstract Publishing Company. Jenkins Arcade Building. Cloth. Vest Pocket size.

Medical Clinics Of North America. Volume III, Number 5. (PHILADELPHIA NUMBER.) March 1920. Philadelphia and London. W. B. Saunders Company. Issued bi-monthly. Price per year (6 numbers), paper $12.00; Cloth, $16.00.

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The American College Of Surgeons

Will hold its next meeting during the week of October 11th, in Montreal. An interesting and attractive program is being planned. This will be the first meeting held outside of the United States.

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ALEX. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
BEVERLEY R. TUCKER, M. D., Richmond, Va.
PAUL W. HOWLE, M. D., Richmond, Va.
EDWIN L. KENDIG, M. D., Victoria, Va.
ALFRED L. GRAY, M. D., Richmond, Va.

EDITOR
ALEX. G. BROWN, Jr., M. D.
G. H. WINFREY, Business Manager.

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Editorial

Tests of Heart Function.*

The reserve force of the heart may evince itself in two ways, either by an increase in rate or an increase in systolic output with each beat. Careful observation of heart action in order to judge of the heart function may be grouped under (1) clinical observation, (2) change of pulse rate, (3) blood-pressure variations, (4) instrumental tests, by polygraph, Roentgen ray, electrocardiograph and metabolic examination.

First, we may judge by clinical observation. Irregularities of pulse imply a waste of heart energy and poor heart power, pulsus bigeminus, pulsus trigeminus, auricular fibrillation, betoken weak, exhausted heart musculature.

Variations in the rate of the heart, tachycardia, bradycardia, pulsus alternans are signs of alterations and waste of heart power. Dyspnea is one of the most practical and useful clinical signs of heart functional disturbances. Severe dyspnea is an early sign of heart failure, associated with fine crepitation at the bases of the lungs. Auscultation of the heart helps much in judgment of heart function. For instance, a diminished second aortic sound following brief exercise, associated with accentuation of the second pulmonic sound, indicates to the examiner a lessened functional power in the left ventricle and a more potent right ventricle.

*Read Kahn (Mount Sinai Hospital) Medical Clinics of North America, September, 1919, page 433.

Change of Pulse-Rate is useful also. The pulse is normally slower in the recumbent position. The normal difference of 7 to 15 beats is diminished or altogether lost in cases of incompetent valvular disease or when the heart is muscularly fatigued or weak. A variation of pulse rate of 30 beats between standing and lying indicates a poor heart function. Effect of exercise of pulse-rate is another clinical method of judging the heart. This is a simple test. It was used in the recent war very generally in testing soldiers' heart function. The pulse rate is counted while patient stands. The patient then performs a given amount of work as hopping 70 times on one foot. Then after waiting for two minutes the pulse is again counted. If the pulse-rate returns to normal after the lapse of two minutes the heart function is considered normal or within the normal.

Blood-pressure measurement of heart function is commonly used by practical observers. This is very easily done with an ordinary sphygmomanometer. The palpating finger notes the resistance of the vessel-wall, the size of the pulse-beat, the character, duration and quality of the pulse-wave, and the diastolic pressure of the wave. These are valuable in assisting the clinician to form a judgment of heart function. But the instrumental measurement by the auscultatory blood-pressure reading is more helpful and accurate. One only needs to remember that the maximal (systolic) blood-pressure is during diastole of the heart with aortic valves closed, that the pulse pressure is the amplitude of range of blood pressure between the diastolic and systolic. The pulse pressure, then, serves as the indicator of functional capacity of the heart: the normal pulse pressure ranges from 30 to 50 m. m. below the systolic pressure.

Tiegerstedt's factor for cardiac function is a useful formula to use in this connection. Pulse-pressure is divided by systolic pressure. This equals the blood-pressure coefficient. In normal persons this coefficient is 25 to 35 per cent. So, if a person has a pulse pressure of 20 mm. Hg. and systolic pressure of 130 mm. Hg., the coefficient is 20/130, or 15 per cent, which indicates poor myocardial function.

Katzenstein's Test is performed by the patient lying quietly in the recumbent position. The pulse rate and blood-pressure are taken. Both iliac arteries are then compressed digitally by an assistant or by an Esmarch bandage

for two or two and a half minutes. Katzenstein concludes that:

(1). In normal compensated hearts after compressing of the iliacs, the blood-pressure rises 5 to 15 mm. Hg. and the pulse-rate falls.

(2). In hypertrophied compensating hearts, the blood-pressure rises 15 to 40 mm. Hg. and the pulse rate falls or remains unchanged.

(3). In beginning decompensation the blood-pressure remains unchanged while the pulse-rate increases.

(4). In cases of cardiac decompensation the blood pressure falls while the pulse-rate increases considerably.

The use of the polygraphic tracings and the electro-cardiographic changes and metabolic changes involves the use of instruments demanding more or less special study and opportunity. These cannot be so readily and so generally used, But the heart tests described above can be easily used by the physician in the ordinary course of his work. Surprising and interesting judgment of heart efficiency may be gotten by making bedside and office observations as indicated in the foregoing comment.

The Light of Truth.

The light of truth in dealing with the venereal problem affords the only hope of successfully controlling sex diseases. At last, in our generation, after years of secretly observing its deadly incidence, public opinion seems about ready to grapple with it as a problem full of menace. The Public Health authorities in the various states are dragging out into the light of day the gruesome story of the secret progress of this hideous monster. Through the centuries among the children of men its poisoned breath has blighted generation upon generation of the human race. What horror, abomination, and bitter sorrow has marked the trail of venomous syphilis down the ages? What woe and destruction has been written in the history of gonorrheal infection? From the world of the insane, from the pitiful night of the blind, from the multitude of crippled, deformed, blighted of the human race, comes one long agony of lamentation and misery in answer. Will not thinking, reasoning, intelligent man stop this? He can. The light of truth is the weapon to use.

Truth to the Public. Facts disclosing the nature, the signs and effects and direful consequences, and the mode and manner of propagation of these diseases are a few of the essential points in the publicity campaign. The story of the awful consequences must be told, withholding nothing; but rather disclosing all. Let the same propaganda of publicity signalize this campaign of public health as was successfully employed in campaigns for controlling other infectious diseases unrelated to sex. The upper classes may need a different method or plan of instruction and education from that used to disseminate the truth of these dreadful maladies in the middle and lower strata of the social order. The ways and means are matters for the special work of Public Health officers who understand the difficulties of public instruction. But the truth of this whole matter must be laid before the people.

Truth by the Doctors. The physicians of the land must look the problem squarely in the face. If the venereal laws of the country were rigidly enforced, the doctors would be a potent factor in controlling venereal diseases. Let the members of the Medical Society of Virginia know the law on this matter and let them report these cases to proper authorities in the manner prescribed by law. It has been said that over 250,000 people die each year in this country as a result of venereal infections. The incidence and the complications of these diseases reach a greater multitude. This can be greatly curtailed and controlled by a nation-wide cooperation of the medical profession. The strong weapon, obligated as the profession is under the laws of the land, is the consistent reporting of each case to the Boards of Health. Are we as a profession to be indicted longer with the accusing thought of failure to carry out this provision of the law? Will not shame rest upon us if we fail in this? The accusing finger of the blighted, blinded, crazed and paretic shall not not point to us. Let us support in every way our Boards of Health in the effort to control venereal diseases.

Truth from Public Health Boards. The prophet of old cried, "My people are destroyed from a lack of knowledge." This is the great duty before the Boards of Health. The truth of curing the disease in the individual case and the instructions given the individual during that course of treatment serve as potent factors in reducing the incidence and forestall-

ing the complications. The establishment by Boards of Health of institutions and free clinics for treatment of acute cases and the chronic carriers will assist in the solution of the problem. These free clinics, well organized and conducted, in cities, towns and rural communities, will do much to cure these cases early and protect the general public. The free Wassermann test and other laboratory tests needed for diagnosis will help to throw the light of truth upon obscure or questionable cases. The free, or reasonably low cost and distribution of arsphenamine is another potent possibility in the fight against syphilis.

Florence Nightingale.

"Oh fellow country-women, why hang back? We hear so much of idle hands and unsatisfied hearts, why are there so few to do the work?"

One hundred years ago Florence Nightingale, famed for her labors in reforming the sanitary conditions in the British army, was born. She was the daughter of William Shore Nightingale, of Embry Park, Hamptonshire, England. Although highly accomplished and of brilliant attainments, she very early in life felt the call to the alleviation of suffering. In order to prepare herself for the great task of her life, she in 1844, visited and studied conditions and methods in hospitals all over Europe, and in 1851 went into training as a nurse in the institution of Protestant deaconesses at Kaiserwerth, on the Rhine. She gave ten years of her life to the work of preparation and training. In 1854 England and Russia engaged in war, and Alma was fought on September 20th. The hospitals were crowded with wounded. Unsanitary conditions produced frightful mortality—far in excess of the casualties of the fiercest battle. For England, in this crisis, Florence Nightingale volunteered her services and, with a corps of nurses, on October 21, 1851, set sail for Constantinople. The winter ensuing made suffering and distress most intense. Bad sanitary conditions she recognized as the cause of disease and of the dire mortality. With heroic devotion, superb skill and execution, she set about to remove these evils and to inaugurate a system of nursing which soon mitigated the frightful suffering of the English soldiers.

In the spring of 1855, while in Crimea, this heroic woman was overtaken with a fever which prostrated her, yet she refused to leave her post of duty. On her recovery, she remained at Scutari till Turkey was evacuated by the English, July, 1856. Subsequently, although rendered incapacitated for physical tasks, she devoted her life to the cause of hospitals and nursing.

While reflecting upon the wonderful life-service of this famous woman of history, whose career has given the calling of nursing its strongest appeal and reward, one should not close even a comment of appreciation of this sort, without calling attention to the present-day situation in the profession of nursing. What wonderful developments and accomplishments have been made in the art and science of nursing in these hundred years!

The testimony of the marvelous spirit of service and high standard of efficiency of the nurses of America is readily remembered by all from the course of events in the great world war, when thousands upon thousands of nurses went to war-torn fields of France and gave their services to the cause of humanity.

But the need now for nurses in civil life is very great. The course of events of the war, and following it, seem to have eventuated in a scarcity of nurses in the hospitals and training schools all over the country. It is idle to attempt to analyze the causes of this serious situation. But it is pertinent in this place to say that the physicians of the country should take opportunity to bring the matter to the attention of young women. No force in recruiting the ranks can be found more potent than the physicians themselves. Let the doctors of Virginia realize the need for action in this matter and, as far as possible, endeavor to interest properly prepared young women in the profession of nursing. Let the physician tell the young woman that she must acquaint herself with a limited working knowledge of the anatomy of bones, muscles, blood-vessels, nerves and organs of the human body. She must know, also, a definite, although limited amount, about the physiology of the body. She must learn the common diseases of mankind; familiarizing herself with a nurse's proper knowledge—their symptoms and their general course. She must know, also, of the measures which medical science

possesses to cure and combat disease; of the drugs used; of the diets given; of the surgical and medical technique she must be informed. She must be able to recognize the danger signals of disease; she must be ready to effectively act to combat emergency situations.

She must know craft of the sick room—to choose, to discard, to decide; to understand the light and shadows; to detect and appreciate the noxious and make surroundings pleasant. She must learn the delicate art of handling and caring for the patient; to wash, to dry, to cleanse; to cool the body; to adjust the pillow, to straighten the bedding; to serve the food; to make the sick body comfortable. She must record the changes; record the signs and symptoms of the disease. She must acquire accurate knowledge of certain essentials in the mental attitude of the nurse toward the sick. In this study she must place optimism as the foremost among other necessary important mental qualities—optimism, confidence, brightness! The nurse, also, must learn the importance of taciturnity—when to talk and when to remain silent.

Tell her: If imbued with the spirit of Florence Nightingale, it is truly a noble profession, and the highest reaches of its reward and compensation are found in the rare air of the pure love of the work. For although it's a work that exacts heavy toll, the trained nurse of today, as of a century ago, achieves lasting and satisfying reward in the knowledge of duty well performed to suffering fellow-beings, and with the poet may we not say of the true trained nurse of today as of Florence Nightingale:

Shall I compare thee to a summer's day?
Thou art more lovely and more temperate;
Rough winds do shake the darling buds of May,
And summer's lease hath all too short a date;
Sometimes too hot the eye of heaven shines,
And every fair from fair sometimes declines,
By chance, or nature's changing course, untrimm'd,
But thy eternal summer shall not fade,
Nor shall death brag thou wanderest in his shade
Nor shall death brag thou wanderst in his shade
When in eternal lines to time thou growest.
So long as men can breathe, or eyes can see,
So long lives this, and this gives life to thee.

(108 Wm. Shakespeare Sonnets.)

In writing advertisers, please mention this journal.

News Notes

Improvement In Plan Against Tuberculosis Urged.

In an effort to make better provision for the tuberculous among discharged soldiers, and at the same time to help bring about an improvement in the campaign against tuberculosis, Dr. Hugh S. Cumming, Surgeon General of the U. S. Public Health Service, sent the following telegram to the American Medical Association, while in session in New Orleans:

"I desire to urge more active participation by the general practitioner and by general hospitals in the treatment of tuberculosis. To insure earlier diagnoses, properly train internes and other personnel, popularize treatment in the home climate, provide additional facilities, I earnestly indorse the resolution passed by the National Tuberculosis Association in 1916, recommending that general hospitals should admit tuberculous patients and provide separate wards for that purpose. Sanatoriums and specialists in tuberculosis will always be needed and we should have more of them, but I believe that success in the anti-tuberculosis campaign is largely dependent upon first, convenient facilities for observation and prompt treatment of patients with open tuberculosis and second, in a sharpened perception and higher degree of skill by which the family doctor will make early diagnoses or even forestall the development of clinical tuberculosis in the adult before a definite diagnosis is possible. To provide adequate care for tuberculous ex-service men and others, to protect infants from infection, enlist the aid of the general practitioner, allay phthisiophobia, and improve home treatment of tuberculosis, the opening of general hospitals to this most common of all serious diseases will materially assist."

The Public Health Service, with thousands of cases of tuberculosis among discharged soldiers, who are entitled to medical care and treatment at their hands, find themselves confronted by the fact that practically nowhere will general hospitals admit this class of patients; moreover, there is almost everywhere throughout the United States a lamentable shortage of hospital facilities for those ill with tuberculosis. The opening of general hospitals to this class of patients would do very much more than provide relief for a large class of unfortunates; it would undoubtedly contribute enormously to the efforts now being made to control tuberculosis.

As conditions now are, the interne serving his time in any of the general hospitals, has practically no opportunity whatever to famil-

iarize himself with the diagnosis and treatment of pulmonary tuberculosis. It is small wonder, therefore, that so large a proportion of the general practitioners fall so far short in their diagnoses of pulmonary tuberculosis. The present practice also fosters the erroneous belief in some miraculous virtue in climate in the treatment of tuberculosis, yet those familiar with the disease recognize that it is the PROPER use of fresh air which constitutes the valuable element in treatment at the various well known sanatoria.

In view of the large percentage of deaths from tuberculosis in this country every year, is this not a subject which demands the attention of every doctor and hospital in the country? There is hardly a general hospital that could not devote at least one ward to the care of this class of patients, and the instruction thus given its interns would be invaluable in their private practice.

Tuberculous Persons Without Funds Should Not leave Their Homes.

It is reliably estimated that several hundred tuberculous persons without funds go to Denver every year, most of them with the mistaken idea that climate will cure tuberculosis. They arrive almost penniless, without having made any inquiries, or any provisions for their needs.

Colorado has no State, and Denver no municipal tuberculosis sanatorium, except a small ward at the County Hospital for very sick tuberculous residents, so that the care of such indigent persons is limited to a few private sanatoria, which are continuously so overtaxed that admittance is a long and difficult matter.

These tuberculous poor who migrate to Denver, finding no place where they can be cared for, look for light work in order to maintain themselves, but the demand for such work is far in excess of the supply. Driven to any work they can get, with neither friends nor care, anxious, homesick, hopeless, they rapidly grow worse, and usually soon die for lack of proper rest, food, fresh air, and medical attention—those essentials of treatment which many of them could have had at home, or here, with sufficient funds for two years' care. Without these essentials climate is of no avail.

This desire on the part of Denver and other places frequented by tuberculous patients not to have those without funds come to their doors should not be misconstrued to indicate a lack of hospitality on the part of these localities. Each community has its own burden to carry in the support of its poor and suffering.

May it be but an incentive for the establishment in this and other States of a larger number of State tuberculosis sanatoria, or for the placing of additional beds in those sanatoria already in existence!

American Medical Association.

The House of Delegates of the American Medical Association, on Thursday of Convention week, decided upon Boston, Mass., as the convention city for 1921, and elected the following officers: President, Dr. Hubert Work, Pueblo, Col.; first vice-president, Dr. Isadore Dyer, New Orleans, La.; secretary, Dr. Alex. R. Craig, Chicago; treasurer, Dr. W. A. Pusey, Chicago; speaker of the House of Delegates, Dr. Dwight H. Murray, Syracuse, N. Y., and trustees, Drs. Chas. W. Richardson, Washington, D. C., Wilbur T. Sarles, Sparta, Wis., and Walter T. Williamson, Portland, Oregon.

Through Thursday, there were 3,650 registrations, a very large proportion of these being Southern doctors. A number of attractive and handsome entertainments were given for the doctors and the ladies accompanying them. Virginia's representatives in the House of Delegates were: Drs. Southgate Leigh, Norfolk; Wm. E. Anderson, Farmville, and Joseph T. Buxton (alternate), Newport News.

Doctors from Virginia in attendance at the meeting were: Drs. Wm. E. Anderson, Farmville; John O. Boyd, E. G. Gill, Alfred P. Jones, B. C. Keister, George B. Lawson, Jos. T. McKinney, J. W. Preston, Alvah Stone, H. B. Stone, E. L. Sutherland, and W. R. Whitman, Roanoke; Jos. T. Buxton, Newport News; F. V. Fowlkes, Burkeville; Ira J Haynes, J. Shelton Horsley, Clifton M. Miller, Douglas Vander Hoof, and J. A. White, Richmond; Arthur Hooks, Bristol; M. E. Hundley, Martinsville; D. M. Kipps, Front Royal; Southgate Leigh and L. T. Royster, Norfolk; G. V. Litchfield and J. C. Motley, Abingdon; and J. E. Rawls, Suffolk.

Venereal Disease Control Activities.

During the fiscal year ending June 30, 1919, the Division of Venereal Diseases of the Public Health Service conducted a highly successful program for nation-wide control of venereal diseases. This campaign was conducted with physicians, dentists, druggists, nurses, medical and allied colleges, professional journals and advertising media throughout the country.

A communication was sent to approximately 132,000 doctors in the United States, in order to impress upon them the seriousness of the problem of venereal diseases and to make them realize their responsibility to the public in carrying out the control program. Favorable replies and promises of assistance were received from 60,666 physicians, or nearly 50% of the medical profession of the United States. It is hoped that the ultimate cooperation of the entire medical profession will be obtained.

A plan was suggested by the Service to the medical and allied schools, colleges and universities in the United States to enlarge and improve courses in the diagnosis and treatment of venereal diseases, and to have such courses introduced as major courses in colleges where they are not being taught, and further, to offer special courses covering short periods of time, which men who are now practicing can take in order to prepare themselves to handle these diseases according to the best scientific methods. Favorable replies have been received from all of the 350 colleges thus addressed.

The replies to these two sets of letters will give some conception of the willingness of medical men to assist in wiping out this scourge of creation. The accomplishment of this task will only be made possible by adhering to the old adage, "line upon line and precept upon precept."

Hygeia Hospital Changes Hands.

The Hygeia Hospital, of this city, personally owned and conducted for nearly twenty years by Dr. J. Allison Hodges, was sold the first of May to Dr. John R. Blair, a prominent physician and surgeon of this city, who has a large surgical practice. Dr. Blair will conduct the Hygeia as a general medical and surgical hospital, but will devote his special attention to surgery. He will assume personal charge on June 1, and will form a staff of specialists who will be associated with him in the work. Dr. Hodges will continue to send patients there, and will be a consultant, but will have no part in the active management of the hospital.

It is understood that seventy-five thousand dollars was paid for the hospital, equipment and good will.

The building is complety equipped now as a general hospital, with about forty double and single rooms, and has in addition, separate departments for hydrotherapy, X-ray, massage, electricity, etc., together with sun parlors and roof garden, and every room is occupied at present.

The Hygeia was the second private institution to be established in this city, and has had a successful career under its present management. The hospital is located in the center of the residential district.

Norfolk's Health Center.

Dr. P. S. Schenck, Director of the Public Health Department, of Norfolk, Va., has for several years been planning for a Public Health Center for Norfolk, and it looks as if his plans will shortly be consummated. According to the magazine, "Greater Norfolk," "the proposed site for the buildings is the block of the court house at Bank Street. In the middle of the group will be the existing old Academy building, which will be remodeled to contain the children's court and domestic relations court, and other enterprises connected with these courts. On the sides and to the front of this building will be grouped the general medical buildings, the prenatal building, the detention building, the administration building and the emergency building." A staff of from forty to fifty physicians will conduct the medical department. Though many cities have planned public health centers, few, if any, seem to have made such extensive plans as has Norfolk.

Medical Director Of Memorial Hospital.

At a recent meeting of the Board of Visitors of the Medical College of Virginia, this city, it was decided to create the office of medical director of Memorial Hospital, which is under the jurisdiction of this Board. Dr.

Claude C. Coleman, associate in clinical and operative surgery in the School of Medicine and professor of oral surgery and anesthesia in the School of Dentistry of the Medical College of Virginia, was appointed for this position, and assumed his duties about the middle of April.

As a further measure to fully meet the requirements of the American College of Surgeons in hospital standardization, the following were appointed chiefs of professional departments in the hospital: Dr. Virginius Harrison, obstetrics; Dr. McGuire Newton, pediatrics; Dr. Lawrence T. Price, surgery; Dr. W. B. Blanton, laboratories; and Dr. J. Morrison Hutcheson, medicine. These will constitute an advisory committee to Dr. Coleman, and will be directly responsible to him as medical director of the hospital for the professional work carried on in their departments.

Disabled War Veterans Will Be Retrained To Speak Intelligibly.

The Federal Board for Vocational Education estimates that there are among the injured soldiers, sailors and marines of the world war between 90 and 100 cases of men whose speech became absolutely unintelligible as the result of mouth or neck wounds, aphasia, or other causes. Twenty-five per cent. of these men are still in the hospital and 50 per cent. are in training or approved for training. The courses followed are agriculture, auto mechanics, commercial courses, and chemistry.

There are probably several thousand men throughout the country who became deaf in one ear, or who have suffered slight impairment of hearing in both ears. However, there are only about 200 for whom lip-reading is necessary. Therefore, the approximate number of hearing and speech defect cases will be about 300.

Married—

Dr. James Allan Bennett, Harmony Village, Va., and Miss Grace Bloomwood Vaden, of Middlesex County, Va., April 27.

Dr. Henry Frank Starr, Greensboro, N. C., and Miss Virginia M. Goode, Boydton, Va., May 5.

Dr. Alexander F. Robertson, Staunton, Va., and Miss Frances Sexton, Hazelhurst, Miss., March 26.

The American Pediatric Society

Will hold its annual meeting at Moraine Hotel, Highland Park, Ill., May 31-June 2, inclusive, under the presidency of Dr. Thomas S. Southworth, New York City. Dr. Howard C. Carpenter, Philadelphia, is secretary of the society.

Dr. F. Page Nelson,

Crozet, Va., was elected one of the delegates from Albemarle County, to attend the State Democratic Convention in Roanoke, Va., May 19.

Tuberculosis Clinics Throughout State.

Dr. Dean B. Cole, medical director of the Virginia Tuberculosis Association, returned the last of April from St. Louis, where he had been in attendance upon the National Tuberculosis Association. Early this month, he left for Amherst County, where he was to hold a series of diagnostic clinics in connection with a health education campaign that has been organized in that county. During the past twelve months these campaigns have been carried on in about a dozen counties in different parts of the State, and more than 3,500 persons were examined. These clinics are now in demand by more than thirty counties in the State.

Rear Admiral Cary T. Grayson,

President Wilson's medical advisor, has accepted the chairmanship of a committee which will conduct a campaign for $1,440,000 for his alma mater, the College of William and Mary, of Virginia. This college, founded in 1693, is the second oldest in the the United States and the first college established in the South.

Dr. Henry T. Miller,

Formerly of Staunton, Va., is now located in Washington, D. C., with offices at 1449 Massachusetts Avenue, Northwest.

Dr. A. T. Finch,

Chase City, Va., was a visitor in Richmond in April.

Dr. John Drake, Jr.,

Clarksville, Va., is taking a post-graduate course in Baltimore, Md.

The X-Ray Movie.

Combining in a single apparatus the moving picture camera and the X-ray machine, two French scientists, Drs. Lormon and Comandon, have worked out a "radiocinematograph," which makes possible movies of the interior functioning of living organisms. Although yet not entirely perfected, the new invention has reached the practicable stage, and it opens up new fields of investigation which radiology will not be slow to enter.

Medical experts attached to the American Red Cross Commission to Europe are already considering its application to special problems raised by the unprecedented epidemics now sweeping central and eastern Europe.

Dr. Lormon states that the greatest difficulty encountered was the danger of thermic infiltration by the ultra-violet rays during the photographing of the subjects. To overcome this difficulty, the inventors devised a method for changing the character of the rays employed, an achievement comparable to the original discovery of the Roentgen-ray.

Dr. J. J. Kindred,

Well known in this State, and consultant to Farm Colony and Sanatorium, at Belle Mead, N. J., has been appointed highway commissioner of the Borough of Queens, New York City.

Bank Directors.

Drs. F. W. Lewis, Morattico, and C. T. Pierce, Litwalton, have been elected members of the board of directors of the Chesapeake Banking Company, a new bank which will be opened at Lively, Va., in the fall.

Dr. W. C. Moomaw,

Formerly of Victoria, Va., who, after returning from service in France, spent nearly a year in New York, has now located in Petersburg, Va., with offices at 5 South Adams Street, that city.

Dr. William A. Strole,

Formerly of Norfolk, Va., is at present in Chicago, where he is taking a course in genito-urinary work at the University of Illinois.

Dr. T. Welch Dew,

Of Bumpass, R. F. D., Va., was elected one of the delegates to represent Spotsylvania County at the Democratic convention in Roanoke this month.

Dr. Harry S. Mustard,

Of the U. S. Public Health Service, who was detailed to Virginia in co-operative health work with State health workers, recently resigned this position to take up private practice in his old home, Charleston, S. C. Before leaving for his new work, a farewell luncheon was tendered him in this city, by his friends and associates in the State and government medical service.

Hospital Site Purchased.

Trustees of the Virginia Baptist Hospital Association have purchased twenty-five acres of land just outside of Lynchburg, upon which their proposed hospital is to be built. The site, which is located near Peakland, cost $28,000. Work on the hospital will not be started until next year.

Delegates Elected At Republican Convention.

At a meeting last month of the Republican convention in the Eighth Congressional district of Virginia, Dr. F. M. Brooks, Fairfax, was elected district chairman, and Dr. R. E. Wine, Manassas, was elected a member of the State executive committee.

Charter Secured For Hospital For Deformed Children.

A non-stock corporation, composed of a group of Richmond men and women, has secured a charter to erect in Richmond a $300,000 hospital for the treatment of deformed and diseased children. A number of sites have been under consideration, but none has as yet has been definitely determined upon.

Medical College Of Virginia Finals.

Commencement exercises of the Medical College of Virginia will take place on June 1. There are twenty-six members of the senior medical class, five members of the dental class, and twenty-five in the school of pharmacy. There is one young woman in the senior medical class this year and three in the senior pharmacy class.

The South Carolina Medical Association,

Meeting in Greenville, in April, elected the following officers: President, Dr. W. J. Timmerman, Batesburg; vice-presidents, Drs. J. Miles Walker, York; Wm. A. Boyd, Columbia, and Wm. W. Fennell, Rock Hill; secretary-treasurer, Dr. Edgar A. Hines (re-elected), Seneca.

Two Additional Surgeons Appointed In Richmond To Treat Wounded Soldiers.

Owing to an increase in the work of the U. S. Public Health Service relief and reconstruction station in this city, Drs. A. Murat Willis and Blanton L. Hillman have been appointed as additional members of the staff. Dr. John L. Moore, of the U. S. Public Health Service, assisted by Dr. C. T. Wilfong, also of the service, has been in charge of this work in Richmond, with a consulting staff composed of Drs. C. C. Coleman, J. A. Baird, Paul V. Anderson, William Russell Jones and C. W. Mercer.

Dr. George Tucker Harrison

Has been appointed surgeon of the John Bowie Strange Camp, Confederate Veterans, at Charlottesville, Va. Dr. W. E. Norris was appointed assistant surgeon.

Stafford County (Va.) Board Of Health.

The following were in April appointed as the physician members of the Board of Health for Stafford County: Dr. John C. Gordon, Garrisonville; H. W. Patton, Hemp, and L. F. Lee, River Road. These, together with the chairman and clerk of the Board of Supervisors, will constitute the County Board.

Nurses Have Large Meeting In Atlanta.

Approximately 3,000 nurses met in Atlanta, in April, to attend the twenty-second biennial convention of the American Nurses' Association, the National League of Nursing Education, and the National Organization for Public Health Nursing, which held a week's session there. A number of foreign countries were represented, including France, England, Holland, Canada, Denmark and Finland. Among the subjects discussed were education of student nurses: training school administration: introduction in the nursing school of public health instruction: the relation of the public health nurse to industrial hygiene: health education of school children, and the co-ordination of public and private agencies in the field of public health nursing.

Dr. and Mrs. Herbert R. Etheridge,

Norfolk, Va., were recent guests in Charlottesville, Va., having gone there to attend the marriage of his brother.

Dr. Theodore Hough,

Dean of the medical department of the University of Virginia, has been recommended to Governor Davis by the Board of Visitors of the University, as a member of the medical commission, established by the recent act of the General Assembly.

Dr. W. E. Bray

Has been promoted by the Board of Visitors of the University of Virginia to the position of associate professor of clinical diagnosis in the medical school.

Dr. G. W. Skaggs,

Formerly of Greenville, W. Va., and of the '08 class, Medical College of Virginia, has moved to Leewood, W. V., where he is in charge of a local mining practice.

Dr. Edward Sandidge

Has returned to his home in Amherst, Va., after a business trip to Baltimore, Md.

Dr. William C. Ford,

Woodstock, Va., was a visitor in this city in April.

Major J. Fulmer Bright

Recently gave a lecture on "first aid" at the regular meeting of the Hugh Stockdell Machine Gun Company, in this city.

Dr. E. C. Watson,

Roanoke, Va., was appointed by the Virginia Trapshooters' Association as captain of the five-men State team which Virginia was to enter in the Southern Zone State team matches, to be shot at the Southern Zone handicap in Washington, D. C., May 20-22. There are a number of doctors throughout the State who are interested in and belong to these Trapshooters' Associations.

St. Philip's Hospital.

St. Philip's is the name which has been selected for the new hospital for colored people which is shortly to be opened in this city and run in connection with Memorial Hospital. This name was suggested as typifying the only instance in the Bible where a service to the negro race, especially, was mentioned, and is symbolical of the service which this hospital is expected to render to the colored people of this State and the South.

Hospital For Eastern Shore Of Virginia.

Contract has been placed to erect an up-to-date hospital at Nassawadox, an enterprising

town of about 500 inhabitants on the N. Y., P. and N. railroad, in Northampton County, Virginia. It is estimated that the hospital, with equipment, will cost between $75,000 and $100,000. It is to be of reinforced concrete, tile and brick, with complete heating system, electric lights, electric elevators, etc.

Drs. Foxwell and Kinney.

Drs. Raymond K. Foxwell and Kenneth W. Kinney announce the opening of their office at 1720 M Street, Northwest, Washington, D. C., and that they will limit their practice to Neuro-Psychiatry. Prior to their service in the medical corps of the army, Dr. Foxwell practiced in Cambridge, Maryland, and Dr. Kinney in New Orleans, La.

Henry County To Have Health Campaign.

The board of supervisors of Henry County, Virginia, have voted an appropriation of $5,000 to place the county in line for a year's co-operative health campaign with the State Board of Health on the county unit plan. It is expected that this campaign will begin August 1, under a State Board of Health field director and a complete county health organization. The County School Board has also authorized the expenditure of $7,000, to be used in the sanitation of schools in the county to secure, in most cases, the best type of septic tank toilets.

Dr. William M. Winn,

Of Clarksville, Va., is just completing a handsome home, which he will shortly occupy.

Dr. G. B. Barrow,

Clarksville, Va., was a recent visitor in Stovall and Townsville, N. C., having been called to these places on professional business.

Dr. E. C. L. Miller,

Of this city, addressed the Pharmaceutical Association of the Medical College of Virginia, at its regular meeting held the middle of April.

Alcoholic Cases To Be Reported.

S. R. Donohue, Federal Prohibition Director for Virginia, has announced that all hospitals in the State having patients under treatment for alcoholism must report the names of patients under treatment, in order that a complete record of all such cases may be kept.

Dr. John C. Gordon,

Of Garrisonville, Va., has been appointed by Judge Chichester, coroner of Stafford County, Virginia.

Dr. W. A. Plecker,

Chief of the State Bureau of Vital Statistics, by invitation attended the Conference of Southern Mountain Workers in Knoxville, Tenn., last month, and gave an address on child and maternal welfare.

Dr. and Mrs. Manfred Call

Recently returned to this city after a visit to Atlantic City and New York.

Dr. S. P. Conduff,

Draper, Va., was recently elected a member of the Pulaski County Democratic Executive Committee.

Dr. Charles Wallace Sale,

A native of Fredericksburg, Va., has been promoted to the rank of major in the medical corps of the U. S. Army. He has recently been stationed at Walter Reed General Hospital, Washington, D. C.

Alabama Medical School To Be Moved.

It has been announced that trustees of the University of Alabama, at a meeting in April, voted to move the University of Alabama School of Medicine from Mobile to Tuscaloosa. This was to be done forthwith, but with due regard to the present term of the medical school, which ends June 1, 1920.

The Medical College Of The State Of South Carolina

Has received from the State an appropriation of $71,000 for maintenance, which is $21,500 more than the previous appropriation. An additional appropriation of $60,000 was also made for the physiology building and its equipment.

The Association Of Military Surgeons Of The U. S.,

At their recent meeting in New Orleans, selected Washington, D. C., as their next place of meeting, and elected Asst. Surgeon Gen. John W. Kerr, U. S. Public Health Service, Washington, president, and re-elected Col. Jas. Robb Church, M. C., U. S. Army, Washington, secretary-treasurer and editor.

Dr. E. L. Sutherland,

Formerly of Dublin, Va., after taking a post-graduate course in New York City, has located in Roanoke, Va., where he and Dr. A. A. Cannaday are associated. Their practice is limited to diseases of the eye, ear, nose and throat.

Dr. Ira J. Haynes,

Of this city, has been elected vice-president of the American Mutual Drug Company, a new manufacturing drug company recently started up in Richmond.

Major A. G. Coumbe, M. C.,

Of Vienna, Va., who has recently been stationed at Ft. Wood, New York Harbor, is now at Camp Mead, Maryland.

Dr. William F. Grigg,

Formerly of 10 West Grace Street, this city, has bought the house and lot at 934 West Grace Street, and will move his office and residence there on the first of June.

A Special Aviation Medical Service

May be created in the U. S. army medical corps, with a view to materially decreasing fatalities among flyers in the service. Statistics compiled by British medical authorities for the first year of the war showed that 90% of deaths among aviators were due to physical defects among pilots, 8% to defective planes, and 2% to enemy activities. Upon the establishment of the air medical service, which made a special study of the qualifications necessary in an aviator, the percentage of deaths due to the faults of pilots was reduced to 12.

Good Location For A Physician.

For rent or sale. Pretty Queen Ann cottage with nice lawn and shade trees and ten acre lot. Doctor's office equipped with drugs and surgical instruments for general practice. Situated in small town on upper James.

Interested parties please address "V," care this journal. (Adv.)

Location and Practice For Sale,

With good 8-room house—$8,000. Address "Q. Y.," care Virginia Medical Monthly.—(Adv.)

Wanted—An Assistant for general practice. Good roads, comfortable house with electric lights and bath. Good schools and churches. Address, B. R. Hudnall, M. D., Low Moor, Va. (Adv.)

Obituary Record.

Dr. Joseph Johnston Shanks,

Of Salem, Va., died at McAlpin, W. Va., March 31, from pneumonia. He was in his sixty-fourth year. Dr. Shanks was a graduate of the New York University Medical College in 1882.

Dr. Rozier Clageth Bayly,

Of Alexandria, Va., died in a Washington hospital, March 28, three days after an operation for mastoiditis. He was in his thirty-ninth year, and had received his medical education at Georgetown University, Washington, from which he graduated in 1905. He was at one time a lieutenant in the medical corps of the U. S. Army. At the time of his death, Dr. Bayly was secretary of the Fairfax County, Va., Medical Society.

Maj. Fredk. C. A. Kellam,

Of the U. S. Army medical corps, died in Washington, D. C., April 11, after undergoing an operation. He was a native of Pungoteague, Va., and was 38 years of age. His medical education was received at the Atlanta College of Physicians and Surgeons, from which he graduated in 1909. During the recent war, he had charge of the government hospital at San Antonio, Texas.

Dr. James Garland Boxley,

Of Louisa County, Va., died April 22, after an illness of many months, aged 77 years. When 21, he graduated from the Medical College of Virginia and at once entered the Confederate Navy. Upon the close of the war, he married and located in Louisa County, where he practiced his profession and conducted a large farm until forced to retire on account of failing health. Several sons survive him.

Mr. Frank G. Ryan.

It is with regret that we announce the death in Detroit, Mich., April 20, of Mr. Frank G. Ryan, president of the well known firm of Parke, Davis & Company. His death was due to pneumonia. Mr. Ryan was fifty-nine years of age and was one of the founders of the American Drug Manufacturers' Association, and a former instructor at the Philadel

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OPERATIONS ON HARE-LIP AND CLEFT PALATE.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

Operations on hare-lip and cleft palate, when successful, fill every reasonable demand made upon the science and art of surgery. First, and most important, the operation for hare-lip and cleft palate is often life saving. These congenital deformities are not directly fatal, but it is well known that but few children born with hare-lip and cleft palate reach adult life without an operation. They succumb readily to both respiratory and gastro-intestinal disease. The nasal structures, that are intended in the normal child to warm the air and to abstract at least some of the floating foreign material from the air, are nullified by the wide open cleft, which permits almost direct access of air to the larynx without the intervention of the protecting membranes of the nose. This predisposes to respiratory diseases and renders the tissues of the pharynx in a chronic state of inflammation, which also predisposes in young children to gastro-intestinal disease. The second object that is attained by surgery of hare-lip and cleft palate is the relief of the deformity and the greater comfort of the patient. A third desirable result is that it relieves society from the sight of an unpleasant object, for surely nothing can be more unpleasant than gazing upon a wide-open hare-lip, and from the hearing of unpleasant sounds, which any one who has listened to the attempted conversation of a patient with cleft palate can readily appreciate.

Inquiries are often made about the proper time for operation on hare-lip and cleft palate. The hare-lip should be operated upon when the baby is two weeks old, or as soon thereafter as possible. If the hare-lip is accompanied by a complete cleft in the palate, that portion of the cleft that involves the alveolar process is closed by a single wire suture immediately before operating upon the hare-lip. If the baby is in good condition, usually both of these operations can be done at the same sitting. The cleft of the hard and soft palate is, in my judgment, best operated upon at the age of about six months. If the operation is not entirely successful, further operation can be done, so that the baby should have a satisfactory palate by the time he begins to talk. This is all that is necessary, and if the palate is holding and functioning when the baby begins to talk, there will be no defect in his speech. If the operation is done earlier than six months, the tissues and palate have not well developed, the bony structure of the hard palate is still very soft, and the shock of the operation is somewhat greater than appears to be the case when the baby has attained the age of six months. Of course, if the cleft interferes with the nutrition, or there are other good reasons, the operation can be done earlier. If the operation is postponed beyond the age of a year, when the child has acquired the habit of talking, he will have to be re-educated so as to talk without a defect, even though the palate has been restored to its anatomical normal. This can be accomplished by the assistance of an intelligent voice culture teacher and, if the palate has been entirely corrected, the training of the speech should be persisted in until it becomes normal.

No operation for hare-lip or cleft palate should be performed unless the baby is in good physical condition. No matter how accurately the sutures are placed, nor how gently the tissue is handled, if the baby is in poor physical condition, has been improperly fed,

*Read by invitation at the Tri-State Medical Association of the Carolinas and Virginia, at Charlotte, N. C., February 18, 1920.

or if the food is not agreeing with him, operation should be postponed until the patient can be built up or the dietary errors corrected. If this is impossible, operation should not be done, as it would almost certainly meet with failure. Babies should be either on mother's milk or modified cow's milk. A child that is fed largely or entirely on condensed milk may look well, but will not stand the strain of an operation satisfactorily.

The operation that I perform for hare-lip is the Rose operation, with very slight modification. It is important to have a satisfactory background for the lip to rest upon, and if there is a cleft of the alveolar process, or if the hare-lip is a double hare-lip with a protruding premaxillary bone, this condition should first be corrected. After this, the operation for single hare-lip demands that the tissues, when sutured together, be free from tension, that the hare-lip at the point of suture should be slightly longer than normal, and that the vermilion border of the lip should be accurately approximated. In order to secure union without tension, the lip and ala of the nose are freely dissected from the maxillary bone with the knife and scissors. The side of the hare-lip near the mid-line needs but little mobilization, but the ala of the nostril should be completely freed. This is sometimes followed by sharp bleeding, which can be readily controlled by firm pressure for a few minutes with dry gauze. The incisions are based upon the prinicples of the Rose incisions, only instead of using curved incisions I prefer an angular incision. The edges of the hare-lip are caught with mosquito forceps on the mucous membrane near the lower border of the cleft in the lip. The fingers of an assistant control the coronary arteries and stabilize the lip. An incision is then made in the outer portion of the cleft of the lip, going from the mucosa into the skin about one-quarter of an inch. This incision is carried outward and upward and is made with a sharp-pointed knife. From the end of this incision another straight incision is carried upward and inward to the nasal border of the nostril. The knife incision is carried well through the skin, but the rest of the incision may be completed with scissors. (Fig. 1.) The incision should go through the lip where it is normally thick, so that when the tissues are approximated there will be the full thickness of the lip along the line of suture. Otherwise, there will be a disfiguring groove. A similar procedure is carried out on the other side of the cleft in the lip and a suture of the finest silk-worm-gut is placed through the lower mucosa borders of the lip, but is not tied. It is used as a tractor suture. A through and through stitch of very fine silk-worm-gut is placed through the lip just above the vermilion border and near the angle of the incision. This stitch should include a very small bite of skin, but should be carried outward from the incised surface in such a way that a full bite of the musculature and the mucosa is taken. The stitch is carried through to the other side of the cleft in the lip and inserted

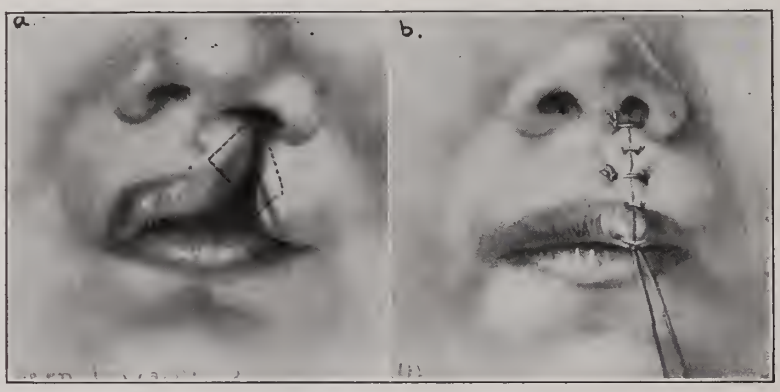

Fig. 1. (a) The lines of incision for harelip operation. (b) Suturing of the pared edges has begun. Note insertion of the traction suture.

at about a similar point, going from the mucosa to the skin and taking a very small bite of skin, while tension is made on the tractor suture. The first knot in this stitch is tied and the tractor suture is relaxed to demonstrate whether the suture makes the lip symmetrical. If it is not in satisfactory line, half of the suture is withdrawn and reinserted. This is an anchor suture, and is very important. Another silk-worm-gut suture is placed near the nostril going through all layers of tissue. It should not be placed within the grasp of the nostril, for this is likely to occlude the nostril, and it is better to have the nostril a little too widely open, which can be easily corrected later by excising a wedged-shape piece of tissue on its floor, than to have it occluded. In an adult, or an unusually long lip, it may be necessary to put one other through-and-through suture, but the average child only needs two, placed as described. Further approximation is obtained by suture of fine silk. I usually use arterial silk 00000 or very fine silk-worm-gut. These sutures go no deeper than the skin or mucous membrane. The wound is powdered lightly with boric acid powder and no dressing is applied and no retentive apparatus, such as adhesive plaster, is used. Formerly adhesive plaster strips running from the cheek across the bridge of the nose to the forehead on the opposite side were used. They were annoying and frequently slipped, and sometimes caused irritation of the skin. I have found that healing without retentive apparatus is just as satisfactory as when the adhesive strips were used, and the patient certainly appears to be more comfortable without them. (Fig. 1.)

The parents should always be instructed to bring the child back in about three or four months after the operation. The lip may be approximated apparently perfectly, and yet during the process of healing there is sometimes undue contraction and a notch will form or one side of the lip will be pulled up a little more than the other, and leaves a slight unevenness at the vermilion border. This should be unsatisfactory to the surgeon, even if it is not complained of by the parents or the patient, and if the parents are informed of this possibility before the operation for hare-lip, they will understand the situation. If the second operation is necessary, it is a very slight plastic procedure, and will make an almost perfect lip instead of one with a notch or irregularity. The stitches, except the through-and-through stitches, are removed in five days. The through-and-through stitches should be kept in place from seven to nine days, depending upon the firmness of union.

I believe this operation will be satisfactory in practically any type of single hare-lip. In double hare-lip, if there is a premaxillary bone, it is set in place by making a submucous resection of the nasal septum which supports the premaxillary bone. (Fig. 3.) The

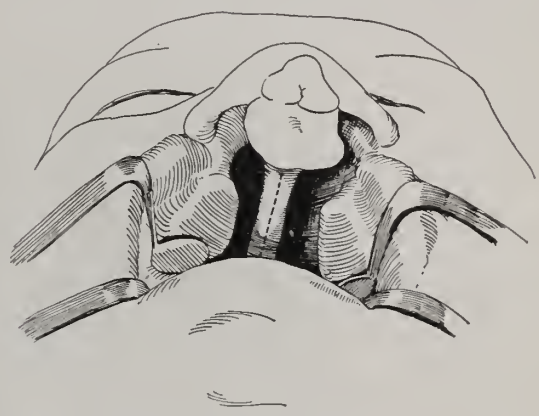

Fig. 3. Splitting mucosa of septum in double harelip in order to make submucous resection to place the premaxillary bone in the cleft. The premaxillary bone should always be preserved and never removed.

edges of the premaxillary bone and corresponding portions of the maxillary bones are freshened by trimming away the mucous membrane. The premaxillary bone is set back into the gap between the maxillary bones and held in position by a braided wire suture In an infant, this suture can be passed by thrusting a stout perineal needle with the eye at the point through the soft bone just above the alveolar process and threading the wire through the eye of the needle while it is within the cavity of the mouth. The wire is then pulled through, and a similar procedure is carried out on the other side. The perineal needle is then thrust through the soft tissues just in front of the premaxillary bone, the wire is drawn through and is tied snugly, holding

the premaxillary bone fixed. The mucosa of the lip tissue over the premaxillary bone is denuded and the edges of the cleft in the lip are pared somewhat similarly to the paring of a single hare-lip, only at the angle of the incision a straight incision is carried outward and slightly upward for a distance of about one-half an inch in order to provide an ample margin for the lip. (Fig. 2.) This flap is sutured to its opposite flaps in the mid-line and through-and-through sutures unite that portion of the lip over the premaxillary bone to the adjoining parts of the lip. These sutures should be fine silk-worm-gut. Other approximating sutures may be fine silk-worm-gut or arterial silk. (Fig. 2.) The after-treatment is the same as in single hare-lip.

In cleft palate operations, the ideal should be the same as in all operations; that is, to restore the palate so far as possible to its anatomic and physiologic normal. Various types and modifications have been used, and a number of these I have employed, but I have found that the principle of the old Langenbeck operation comes nearer filling the ideal conditions than any other type of operation. The Lane operation, in which a flap is turned over from one side, including the mucosa over the alveolar process and hinging on one edge of the cleft, and tucked into a pocket made on the opposite side of the cleft, affords a number of immediate apparent successes, for the cleft is thus readily closed. A large raw surface is left, however, and eventually the scar tissue is so marked that the palate is merely a mass of fixed scar tissue with little or no function except the passive one of stopping the cleft. Such patients have but little use of the muscles of the soft palate and often have pronounced defect in speech.

The operation of Langenbeck consists of paring the edges of the cleft, making a relaxation incision near the alveolar proecss, and after stripping up the muco-periosteal flap from the bone of the hard palate and separating the fibrous attachment of the soft palate to the bone of the hard palate, the margins of the cleft are united by interrupted sutures. There are certain important points in this operation to insure success. The first is to handle all the tissues as gently as possible. These wounds cannot be protected against infection from food or air, so their natural resistance must be preserved by treating them gently. A second important point is that the relaxation incision should be made as close to the alveolar process as possible and posteriorly it may curve around the process slightly. If made further inward, the posterior palatine artery is injured and the nutrition of the tissues along the cleft is greatly impaired. A third important point is thoroughly to separate the fibrous attachment of the soft palate from the bone of the hard palate, and the fourth point is to use silver wire sutures, which in themselves are slightly antiseptic, and to put just sufficient pressure upon them to approximate the tissues.

After anesthetizing the patient with ether, the anesthetic is continued by pumping ether

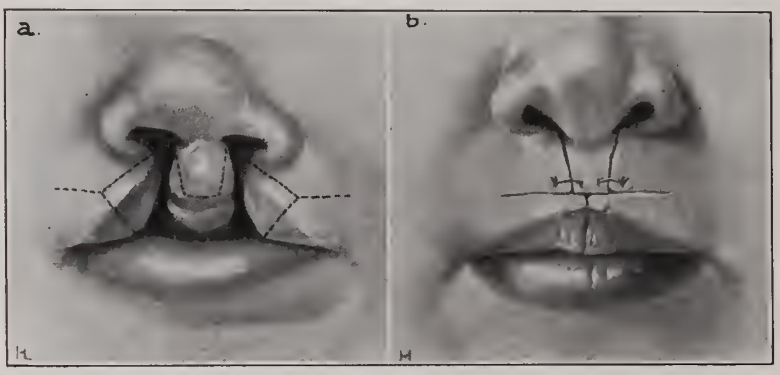

Fig. 2. (a) The lines of incision for double harelip operation shown by dotted line. (b) Suturing of double harelip after incisions have been made.

vapor through a perforated metal tube, which is held in the corner of the mouth. One-half of the uvula is seized with mosquito forceps and the uvula made tense while a thin ribbon of mucosa is cut from the anterior portion of the cleft to the tip of the uvula. (Fig. 4.) This procedure is repeated on the other side. I prefer this to denuding the cleft after the flaps have been mobilized, because I think a smoother paring can be done at this stage than later on. The relaxation incisions are made just within the alveolar process and are no more extensive than the width of the cleft and the height of the arch of the palate demands. A small periosteal elevator is introduced through the relaxation incision and the muco-periosteal flap is well elevated. This procedure is repeated on the opposite side. Wherever possible, sponge pressure is held over one bleeding surface while the operation is being carried out elsewhere. This minimizes the loss of blood. After the muco-periosteal flap has been thoroughly mobilized on each side, the fibrous attachment of the soft palate to the bone

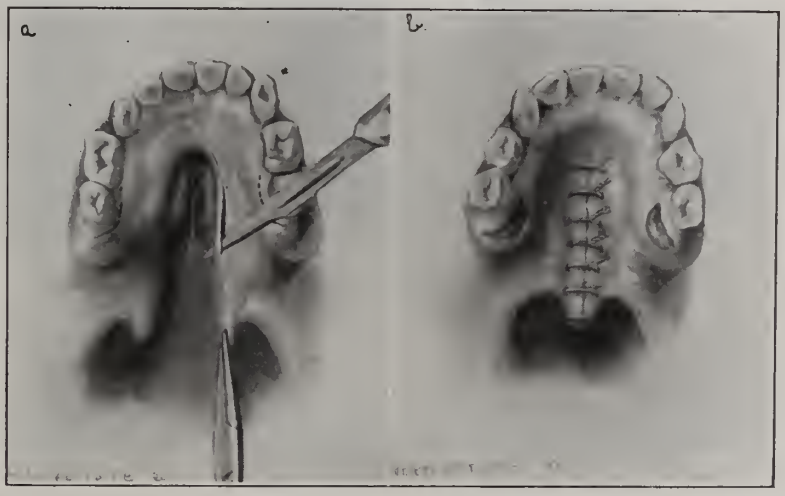

Fig. 4. (a) Cleft of hard and soft palate, showing method of paring the edges of the cleft. The dotted lines indicate relaxation incisions which are made close to the alveolar process to avoid injuring the posterior palatine arteries. (b) The tissues have been mobilized through the relaxation incisions. The attachment of the soft palate to the bone of the hard palate has been severed and the edges of the cleft are approximated with seven silver wire sutures.

Fig. 5. (a) David R., age 10 months. Photographed before operation. Harelip had been operated on unsuccessfully elsewhere, all stitches having broken down. (b) Photograph of the same patient as in Fig. 5a. Photograph taken about 4 months after operation. The patient also had a complete cleft of the palate.

Fig. 6. (a) Bessie H., 3 weeks of age. Photograph taken before operation. (b) The same patient as in Fig. 6a. Photograph taken 2 years, 7 months after operation. This patient also had complete cleft of the palate in addition to the harelip.

of the hard palate is divided by a curved blunt-pointed scissors, which are inserted with one blade between the muco-periosteal flap and the bone and the other just above the bone and the scissors carried down to just posterior to the margin of the bone of the hard palate. The separation at this point is facilitated by retracting the tip of the uvula on that side after grasping it with mosquito forceps. This procedure is repeated on each side. Fine silver wire, about No. 29 or 30, in a sharp curved needle, is inserted through the cleft on both sides about the junction of the hard and soft palate. This is not twisted, but by leaving a clamp on each end of the suture, placing of other sutures is facilitated. About three sutures are placed in front and three behind this central suture, the others being twisted as they are placed. The sutures should be twisted just tightly enough to approximate the tissues well. The ends are cut off and one or two should be left slightly protruding and not tucked under so as to prevent suction in the region of the wound by the tongue. (Fig. 4.)

Any extra suturing, such as suturing the posterior pillars of the palate together, or tapes or larger wires carried through the relaxation incisions and around the flaps, is unwise. They either cut off the nutrition while relieving tension, or predispose to infection, or both. No other suture should be placed except those described. The wound may be kept clean by an atomizer containing some mild antiseptic, such as boric acid or an alkaline antiseptic, which is sprayed through the mouth and nose every three or four hours. The sutures are removed in about two weeks, but silver wire sutures can be left longer.

Proportionate successes with this operation

Fig. 7. (a) Herbert T., age about 7 months. Photograph taken before operation. (b) The same patient as in Fig. 7a. Photograph taken 2 years, 3 months, after operation. All three of these patients, in addition to the harelip, had complete cleft palate which has been successfully repaired.

increase with experience. If the patient is in good condition and the operation is carefully performed, a majority of these cases should unite perfectly after the first operation. The possibility of some stitches breaking down, however, should be explained to the parents before the operation is undertaken. The surgeon will find that using apparently the same technic, his latest work will be more successful than his earlier work. Formerly I was satisfied with about one-third of the cleft palates healing completely after the first operation, it requiring one or more subsequent operations to complete the closure. In the last five consecutive operations on cleft palate, four have healed perfectly after the first operation and one broke down entirely. This was on a young baby who had been fed with condensed milk and who developed a temperature of 106 degrees three days after operation. The baby recovered, but all the stitches broke down at the end of the first week. I believe, with care and patience, every congenital cleft palate, no matter how bad, can be closed, providing a competent operator does the first operation. In defects of the palate following syphilis, however, permanent closure is much more difficult and is often impossible.

HEMORRHAGIC PNEUMONITIS.*

By GARNETT NELSON, M. D., Richmond, Va.

During the two winters that the American Army was in the training camps in this country and in the camps and trenches in France, it was visited by two epidemics affecting the lungs and pleura. These epidemics were very similar as to their mortality, but essentially different as to their pathology. The one that occurred at Camp Lee, at least in 1917, was primarily a serous membrane infection, affecting in order of frequency the pleura, pericardium, peritoneum and meninges; while the infection in France, at least the one we saw at Toul, attacked the lungs primarily and the relatively rare empyemas were secondary to this infection of the lung tissue proper. This is particularly interesting on account of the fact that the infections agent in so many cases seemed to be the same, the streptococcus hemolyticus. No satisfactory explanation of either condition has appeared that I know of. Primary empyemas are not so very common as isolated findings, and epidemics of this sort were up to 1917 practically unknown. Until the winter of 1918, the type of pneumonia to which we gave the name Hemorrhagic Pneumonitis had not been described. So here again there is another similarity, one epidemic being properly called new on account of the comparatively rare occurrence of this infection even in isolated cases, and the other on account of the fact that it actually was a novelty.

It is a well known fact that many epidemics vary in their virulence during their course, reaching a climax and gradually fading away. This common history obtained with us both years. I mention this fact particularly in order to take another shot at the so-called Empyema Board that worked at Camp Lee during the late winter and early spring of 1917 and 1918. Their results were perhaps somewhat better than those of our own surgeons, but in their published reports they failed to lay proper emphasis on the perfectly patent fact that they were treating one condition and our men another.

This variation in virulence was especially true of the empyema epidemic. The early cases became desperately ill in the first twenty-four hours, and numbers of them died in from two to three days from the beginning of their illness, no matter what was done, whereas the later cases showed a less violent reaction and a tendency to run a more chronic course. The two epidemics were, therefore, very similar in these respects:

1. The frequent occurrence of the streptococcus hemolyticus as the apparently responsible organism.

2. The marked difference between the violence of reaction of the early and late cases.

They were conspicuously dissimilar in that in the former the infections agent showed a specific predilection for serous membranes, especially the pleura, with either an abscess of, or a late development of, involvement of lung tissue, while in the latter the converse was true.

Before going into a more detailed discussion of Hemorrhagic Pneumonitis, I wish to bring out one other point that applies to both epidemics, namely, the striking way in which the physical signs followed those usually described as belonging to, or to be expected, in the

*Read at the fiftieth annual meeting of the Medical Society of Virginia in Richmond, October 28-31, 1919.

respective conditions. Of course there were some cases where two and two did not seem to make four, but as a rule in the fluid cases the positive findings over the fluid, the findings over lung tissue adjacent to fluid, and over the un-involved side together with the displacement of solid viscera, enabled us to make rapid and accurate diagnoses. The Hemorrhagic Pneumonitis cases gave us more trouble, certainly until X-ray studies and postmortems enabled us to interpret our findings sufficiently well to know their significance. Here, as stated above, we were dealing with a condition not only new to us, but one not previously described in medical literature.

Early in the course of the epidemic of Hemorrhagic Pneumonitis we recognized that we were dealing with pathology that was new to us. Since returning to the States, and obtaining in consequence access to literature not available while away, I have learned that a similar condition existed here at home and was generally recognized. Nevertheless, in spite of this general recognition, it appears from the reports from some of the camps that their authors failed to see this very important fact: we were dealing with either a new infection, or with an old infection that for some reason was producing a new disease. In the American Journal of Roentgenology for June, 1918, John Hunter Selby reports the X-ray findings in "Hemorrhagic Pneumonitis" as seen at the Walter Reed General Hospital during the past winter. I was particularly interested in his title on account of the fact that the term Hemorrhagic Pneumonitis was, as we thought, invented by ourselves and employed in a discussion of this subject before the Justice Hospital Group Medical Society in October, 1918.

Between August 21 and December 2, 1918, approximately 13,000 medical cases were admitted to Base Hospital 45. Of these 270 died in the hospital. Two hundred and fifty-five of these deaths were due to some form of pneumonia. The diagnosis of practically all was confirmed by X-ray studies, and postmortems were held on 133 of those that died. These were divided according to the postmortem pathology into the four following groups: 1. Lobar Pneumonia. 2. Acute Interstitial Pneumonia. 3. Broncho-pneumonia. 4. Hemorrhagic Pneumonitis.

It is proper to state that our pathologist, Major Jean Oliver, employed for the last group the term "Hemorrhagic Necrotizing Broncho-pneumonia," on account of the areas of necrosis that appeared in those cases that came to postmortem after an illness of several days' duration. Not only as a matter of choice, but on account of the fact that the term was independently used by observers in this country, I shall stick to "Hemorrhagic Pneumonitis." It is my purpose in presenting this paper to discuss only the last group. Acute Hemorrhagic Pneumonitis may, therefore, be defined as an acute infectious disease chiefly characterized by an inflammatory, hemorrhagic reaction in the lung tissue, probably due to a specific organism. Selby's definition was "An acute localized toxic inflammation of the cells lining the alveoli, bronchioles, and their capillaries, producing a frank pernicious hemorrhage into the air passages." From our observation the use of "localized" cannot be sustained.

Etiology and Bacteriology.

Hemorrhagic Pneumonitis may be primary or secondary. Whether primary or secondary the condition is essentially the same, and this sub-division is used only in order to indicate that in the former instance we were dealing with an original illness, whereas in the latter it developed during the course of some other disease. When secondary it arises as a complication of mustard gas burns of the respiratory tract, bad cold, tonsillitis, pharyngitis, laryngitis, bronchitis, influenza, dysentery, sinus disease or any debilitating condition.

Certain very definite contributing factors must be mentioned, particularly crowded barracks, cold, hunger and exhaustion.

The micro-organisms apparently primarily responsible were the streptococcus hemolyticus, other streptococci, pneumococci, especially type 4, and influenza bacilli. Of these the streptococcus hemolyticus occurred most frequently, either alone, or together with other bacteria, and the influenza bacillus least often, in fact, very rarely.

According to our observations very few so-called influenzas showed the Pfeiffer Bacillus. A series of 3464 cases entered Base Hospital 45 during the epidemic on the Toul sector.

Of these less than one per cent showed positive findings, though they were clinically quite definitely influenza. In consequence we reached the conclusion, as did many others, that several different infectious agents could produce the same group of symptoms, possibly in the presence of some virus accompanying them all, perhaps the filterable virus first reported by Nicholi in August or September, 1918, so far as I know.

Symptoms.

The general picture of a severe case of Acute Hemorrhagic Pneumonitis is very characteristic. The invasion is relatively sudden, though not so markedly so as in lobar pneumonia. It is more accurate to say that the patient becomes seriously ill very rapidly. He knows that he has been ill for several hours but cannot tell you exactly when he began to feel so.

The face is pale rather than flushed, the expression is dull, and the lips, ears, nose and finger nails show an early cyanosis.

Very early, during the first twenty-four to thirty-six hours, dyspnoea becomes distressing in the extreme and marked restlessness and insomnia add their share to the already heavy burden of the miserable patient.

A chill is common, but in the majority of cases on close questioning it develops that there was no true chill, but rather an indefinite and prolonged chilliness.

Repeated hard shaking chills may occur.

Headache occurs, but is not characteristic, consisting generally of a diffuse soreness of the scalp with occipital rather than frontal pain.

Nausea and vomiting are occasionally present but rarely troublesome.

Herpes labialis, tympanites, and meningismus are infrequently present.

The tongue is quite characteristic, furred heavily, very brown, dry, and strikingly fissured, except at the edges and tip, which are clean and red.

The following signs or symptoms are of especial interest and of positive diagnostic value:—hoarseness, nose bleed, subcuticular emphysema, petechiae and bloody stools.

Hoarseness is common, occurs early and is persistent.

Nose bleed is very common, occurs early, during the first few hours, and may be profuse, amounting to a free hemorrhage.

Subcuticular emphysema is interesting, but rare—I only saw it in four cases—being found chiefly in the tissues immediately above and below the clavicle, but also lower down on the chest, on the arms, abdomen and back.

Petechiae and bloody stools were frequently observed but probably only in the presence of the streptococcus hemolyticus. The petechiae were at times numerous, occasionally confluent or associated with intra- or subcuticular hemorrhages of extraordinary size.

Early nose bleed, hoarseness, cyanosis, dyspnoea and petechiae were of themselves practically pathognomonic.

Physical Signs. Inspection shows a facies as described above, dyspnoea, petechiae, or more extensive hemorrhages into or under the skin and in the conjunctiva with marked prostration.

Palpation of the chest is of some value. Conduction is diminished, not increased, as in lobar pneumonia, causing an enfeebled vocal fremitus. Rhonchal fremitus may be present. The Pulse is very rapid, soft and of poor volume and the apex impulse feeble.

Percussion is of great value. During the first twelve to eighteen hours skodaic resonance of one or more lobes is found. During the next twelve to eighteen, scattered areas of impaired resonance or frank dulness appear, alternating with areas of skodaic resonance and true hyper-resonance may be found along the anterior margins and at the apices. This hyper-resonance points to an emphysema, which is indeed easily demonstrable at post-mortem. It is quite remarkable that the sensation to the pleximeter finger and percussion note as a rule even in very extensive processes indicate that the lung tissue is not entirly without air.

Auscultation is of even more value than percussion. Both modified and adventitious breath sounds are present. The modification confirms the diminished conduction elicited by palpation, showing diminished vesicular breathing, passing later into a complete loss of normal breath sounds. Vocal resonance is diminished.

The adventitious sounds consist of both dry and moist rales, with a very general distribution. The dry rales are either small squeaky

sounds, or more coarse and cooing in character. They generally disappeared if the patient lived longer than forty-eight hours. The moist rales are at first only small crackling sounds, heard only on deep inspiration, but later become more coarse, very numerous and persistent, of general distribution and heard at any time during inspiration or expiration.

The heart sounds are feeble and indistinct from the beginning, in sharp contrast to the accentuated sounds heard in the first stage of lobar pneumonia.

Pathology and Histology.

Quoting Major Oliver, "In the initial stages of the affection the lungs are deep purple in color, especially posteriorly, and of a firm, doughy consistence, in that they pit on pressure. The pleura is smooth and glistening, and may be covered with hemorrhages, from just visible to 1 cm. in diameter. On cutting into the lung tissue, an intense hyperaemia and edema is the prevailing picture. Bloody fluid flows out of the sectioned lung and collects in a pool on the table. The cut surface is bright red, with scattered here and there areas of dark red to black, which areas are slightly more firm than the surrounding tissues. In spite of careful search it is impossible to find any true consolidation at this time. The bronchi are filled with frothy blood-stained fluid, and their mucous membrane is extremely hyperaemic. This hyperaemia extends up the trachea to its upper third. The larynx is, as a rule, uninvolved. The peribronchial lymph glands are swollen and on section extremely moist. Often they are deep red in color and blood pours from them on section. This enlargement was especially noted in those cases due to haemolytic streptococci, one gland in some instances measuring 5 by 2 by 1 cm." The final stage shows a necrotic process, with either "wide spread areas of necrosis, or more localized softened areas whose purulent nature justifies the use of the word abscess."

Histology.

"The capillaries of the alveolar septa are tremendously dilated and filled with large numbers of leucocytes." "The small bronchi are filled with pus cells." "The picture is soon complicated by the appearance of hemorrhages. These appear in isolated spots, so that a group of alveoli is seen filled with red blood cells, generally located around a good-sized vessel." The terminal bronchi are destroyed.

In the larger bronchi two types of lesions have been observed; one a definite false membrane composed of fibrin and leucocytes, covering the entire wall, and the other a complete necrosis of the mucosa and submucosa.

The Blood is quite characteristic. There is as a rule a marked leucopenia, counting in one case only 1,400, in several below 3,000 and in a large number below 5,000, with sixty to seventy per cent polymorphonuclears and twenty to thirty per cent small lymphocytes. Blood cultures were positive for the streptococcus hemolyticus or other bacteria in a sufficiently large number of cases to warrant a belief that Acute Hemorrhagic Pneumonitis is primarily a septicemia.

Treatment

The line of treatment we followed was, of course, symptomatic. We procured rest by setting aside special wards for these cases, applying warmth to the body, using anodynes or morphine. We fed them as well as possible, paid attention to the skin, bladder and bowels, and to the cleanliness of the teeth, mouth, nose and throat. We tried counter-irritation, venesection, and the usual stimulants when we could get them, aromatic spirits of ammonia, strychnine, spartein, caffein, whiskey, brandy, and digitalis, particularly digitalis. I believe that in ordinary frank lobar pneumonia the indication for digitalis is pneumonia, that we should begin it as soon as we make the diagnosis and keep the patient thoroughly digitalized well on into convalescence. I am not satisfied that it does any good in Hemorrhagic Pneumonitis. In fact there were only three things that seemed to me to do any good.

1. Counter-irritation with large mustard plasters, which undoubtedly in some cases relieved patients of their subjective air hunger. 2. Venesection, especially where there was rapid filling up of the lungs and marked cyanosis. 3. Morphine, in large enough doses to allay restlessness and produce sleep.

In conclusion, your attention is invited to the use of foreign protein in this type of pneumonia, or in any other type accompanied by a low leukocyte count. This work is not standardized, but is undoubtedly full of promise, and the work of McQuarrie and Whipple, of

Roberts and Cary, and of Wells, in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, encourage us to believe that properly used, in properly selected cases, they may be very useful.

1009 *West Franklin Street.*

EMPYEMA OF THE CHEST.*

By W. LOWNDES PEPLÉ, M. D., F. A. C. S., Richmond, Va.
Professor of Clinical Surgery, Medical College of Virginia.

If one needed an excuse for presenting so time-honored a subject, at least two can be easily supplied. First, an entirely new type of the disease (or one so old as to have been quite forgotten) made its appearance in the winter of 1917 and 1918 and swept like a scourge through our military cantonments.

Secondly, men in over-seas service saw more cases of the traumatic type in a few weeks than are usually crowded into a busy professional lifetime.

To discuss the whole question in stereotyped fashion would be but a tax upon patience. I will, therefore, touch lightly on the obvious and settled questions, giving more time and space to such phases of the disease as seem still debatable. The condition naturally divides itself into three classes or divisions: the pneumococcic, usually post-pneumonic: the traumatic, which may be caused by any or by several of the pyogenic organisms: and the streptococcic, usually produced by the streptococcus haemolyticus.

Intimate contact with a large number of such cases teaches certain valuable lessons. First, while we may get pretty good results in this or that case by haphazard methods, in the long run, results will be far better if we know the organism with which we are dealing.

Routine microscopic examination of the chest fluid by smear and culture is necessary. In obtaining this fluid, an open trocar or needle should never be used. If a small syringe half-filled with weak cocaine solution is used, by noting the diminished resistance of the plunger, one can easily tell when the needle is in the cavity. This is also more humane, as it is painless. A distinguished clinician once said, "One may use the needle only to determine the character of a fluid in the chest, never to determine its presence in the chest."

In this connection one can not say enough of the X-ray when skilfully handled and interpreted. It not only shows the presence of fluid, but its location and all the vagaries of pocketing. It will reveal an active pneumonia, an active tuberculosis, and will now and then save an innocent chest by revealing the trouble beneath the diaphragm. Lastly, as a measure of recovery; with it we can watch our cavities recede before the expanding lung, and can know when this is complete.

PNEUMOCOCCIC EMPYEMA: Of this we have not learned a great deal more in the past two years than we knew before. It usually follows a pneumonia. We should wait at least a week from the crisis before operating, the patient's general condition being our guide. Aspiration here can be done for mechanical relief if needed.

We must open the chest at the lowest point of the pus-cavity. This can not be pre-determined, as this is the type that pockets, and each case is, therefore, in a way a law unto itself. I strongly advise removal of a piece of the rib. It should be done if possible under local anaesthesia. The tube should be short, so as not to injure the lung and make a fistula. It should be securely fastened by means of a pin too large to slip into the chest.

TRAUMATIC EMPYEMA: There was much of this in the Base Hospitals of France. It followed all kinds of chest-injury, from the clean-cut hole of the machine-gun bullet to the extensive lacerated chest-wounds, penetrating and non-penetrating. It followed in quite a number of the sucking chests closed in the Evacuation Hospitals.

The startling thing was the number of pleuras filled with blood that did not go on to suppuration but cleared up completely under aspiration. Of the cases that went on to suppuration, most that I saw were pneumococcic, and behaved much as the post-pneumonic cases did. The big thing learned was the resistance of the normal pleura to infections that come from without, by trauma.

STREPTOCOCCIC EMPYEMA: This is rather a loose title used to designate an infection, the most prominent feature of which was the presence in the pleura of large accumulations

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of fluid containing the streptococcus haemolyticus.

That the infection ever attacked the pleura without lung involvement is problematical. In cases severe enough to cause death, involvement of the lungs and other organs was almost the invariable rule. But, on the other hand, primary streptococcic peritonitis without visible visceral lesion was by no means uncommon.

There has been much controversy concerning the management of such cases, due, I believe, largely to the varying intensity of the disease in the different cantonments and in the same cantonments at different times. At any rate, the opinion of the clinician on the spot at the time, in such a crisis, provided he be honest and intelligent, should carry much weight in the handling of similar outbreaks, and it is in that spirit that I briefly recount the epidemic at Camp Lee, and the measures we took to combat it.

In December, 1917, there was an epidemic of mumps and measles, coughs, and colds, and our hospital was very much crowded. About this time there occurred a number of cases diagnosed as pneumonia, which had a rapid, fatal termination.

Postmortem revealed large quantities of straw-colored or cloudy fluid in their pleural cavities, and this contained the haemolytic streptococcus. The mortality was so extremely high and the whole course of the disease was so precipitate, that subsequent cases were referred to the Surgical Service as soon as the presence of fluid in the pleura was detected.

Let me impress upon you here the urgency of the situation; men fell ill and were dead in a few days. Unless something were done quickly, there would be no one to do it on. Left alone, they died like sheep. I do not know what the mortality was on the medical side, at this the most virulent stage of the disease, but it was extremely high.

Seeing that we were facing a serious situation, we evolved the following plan of procedure: All cases were aspirated with a small Luer syringe for diagnostic purposes. A smear and culture were made. If the smear was positive, he was operated on. If the smear was negative and the patient was not suffering mechanically, we waited on the culture. If the patient was suffering mechanically, we aspirated for mechanical relief, with a Potain aspirator. If the culture proved positive next day, we operated.

All cases went through the X-ray room, and latterly we learned to rely on this agent to a greater and greater extent. In this way we avoided opening several tubercular pleurisies, a few lobar pneumonias, and several simple exudates which were re-absorbed or relieved by subsequent aspirations.

We would not operate in the presence of a lobar pneumonia. We would not operate where both sides were involved. We would not operate where peritonitis was a complication. We would not operate where there were multiple joint lesions. We learned not to operate in the presence of a septicaemia or during the active stage of measles. In the few of these in which operation was done, the mortality was extremely high.

Thirty cases came in the first thirty days. They were operated on, and eighteen or sixty per cent died. All were done under cocaine or novocaine. We removed a piece of the 7th rib, usually in the mid-axillary line. Postmortem showed that none of the fatal cases had been drained. There remained from 500 to 3000 c.c. of fluid in the chest. Aspiration of the living cases with a tube and glass syringe showed a similar condition. We reoperated on several of the worst, and drained them properly with good results.

We now started removing the 8th rib in the posterior axillary line. Our mortality dropped to twenty per cent in the next seventy cases, where it remained with minor fluctuations until the character of the epidemic changed.

I will state here that practically every case posted presented some complication that was sufficient in itself to cause death. There were endocarditis, pericarditis, peritonitis, pneumonia, lung abscess, multiple abscess of the liver, kidneys, etc. These cases all went on record as deaths from streptococcic empyema, since this was the title chosen to designate a condition which was new to us all and which we were all earnestly striving to combat.

Had all such cases been eliminated and distributed to the actual pathologic cause of death, our mortality would have been greatly reduced and our record much better. But I

do not think as fair a picture would have been presented of the condition as it actually existed. If we had dodged the worst risks, and God knows there is a temptation to dodge anything with a mortality of sixty per cent, our figures would have been much improved. On the other hand, there are many of those desperate cases who are alive and well today. Would they be here if the septic fluids had been left in their chests?

Look at the problem: We have from 1000 to 5000 c.c. of fluid filled with bacteria and loaded with toxins in the pleura under pressure. It accumulates and re-accumulates with startling rapidity. One can not empty the chest with an aspirator. Cases frequently needled will show a collapsed lung with bloody fluid. It is by no means a procedure free from danger. The needle often goes through pus into the lung. We know what happens when we drop a wire into pus and thrust it into a culture medium. When the needle goes through pus into lung-tissue we duplicate this procedure.

Before going into the details of the treatment I will again call attention to the varying intensity of the disease as it progressed. In the beginning it was virulent beyond anything I ever conceived.

Strong men, picked for their vigor and youth, fell ill and were dead in the space of two days. As the winter wore on, the cases became fewer in number and less virulent in character. With the advent of spring, whether from attenuation of the virus or an increased resistance on the part of the patients, the cases became still milder in type. Time could be taken; one could plan and choose as to a method of treatment. As it grew warmer and the ground dried up and the sun came out and the windows were opened, the epidemic went to sleep for the summer.

Treatment: Drainage; heat; rest; food. I speak now of the early virulent type of the disease.

Drainage: Drain early; drain far back and low down. Take out a piece of the rib. The eighth rib in the posterior scapular line is the point of election. Let them drain into their dressings. The little niceties of drainage into bottles and negative pressure apparatus can be attended to later. Thoracotomy, or an incision between the ribs, we tried and abandoned. It did not drain, and is little less severe an operation than removal of a piece of the rib, which does drain.

Aspiration: In the severe type of case. We tried this as a substitute for operation in a series of five cases when the epidemic was at its height. All grew rapidly worse and were operated on at a time less favorable than when aspiration was begun. All died, and we abandoned it in this class of cases. In the less severe class of cases, aspiration may fill a useful function by unloading the patient's chest of toxins as his reactive forces are assembled. If his general condition warrants delay until the fluid has become converted into true pus, we have a clinical picture much like the pneumococcic type, which is easy to deal with.

Heat: Keep them warm before, during, and after operation. However beneficial it may be to put pneumonia cases out of doors in mid-winter, it will certainly kill these people. They must be kept warm. I can not speak too strongly on this point.

Rest. Let them alone! They are all terribly tired, and anything that worries, nags, or frets them will do them harm.

Food. Give them all the nourishing food they can take. As was first pointed out, I believe, by Major Lawrence Litchfield, Chief of our Medical Service, these cases are suffering a terrific nitrogenous waste in all the mass of serum and pus they are throwing off. This must be replaced by an abundance of food rich in proteid. It is a question of the greatest importance. Milk and eggs should be furnished in abundance.

Dakin's Solution. Undoubtedly the external wounds were kept cleaner by its use and the careful technique that went along with it. I do not think one can sterilize the inside of the chest with this or any other antiseptic. It occasionally finds its way into a bronchiole. It is not free from danger. It disturbs the patient's rest by day and breaks his sleep by night, and at times keeps him wet and uncomfortable. I would not have my own chest Dakinized, if I had any choice in the matter.

Results. Some of the severe cases drained freely and closed permanently in a short while without any solution being used inside

the chest. Others drained for a long time. Others puddled and pocketed, opened and closed for variable periods. But on the whole, the results were good.

We had a large group of healed cases whom we segregated in separate wards. Their weight and color had returned, their appetites were fine. Their lungs were expanded, and to all appearances they were well men again. I loved to walk among them when I felt most discouraged. Many of them, I am sure, would not have been there had they received less radical treatment.

1209 *West Franklin Street.*

KIDNEY FUNCTION.*

By Wm. M. COPPRIDGE, M. D., West Durham, N. C.

The purpose of this paper is to comment on the various types of renal cases seen in the Watts Hospital during the past few months and to state the methods used and results obtained in studying the kidney function. We have no long series of any one type to report nor do we wish to particularly emphasize any one method of studying these cases, but to simply state our experience with the subject in a busy general hospital.

In the past, many methods have been in use to determine the work the kidney is doing. Strange to say, none of them has ever been very popular until the introduction of the phenolsulphonephthalein test of Rowntree and Geraghty. In the past, the examination of the urine for evidence of pathology in the kidney has constituted the chief method of diagnosing the kidney conditions. Knowing as we do that function does not always suffer to the same extent by the same pathology, it is evident that the former methods of studying kidney cases were very fallacious. Of late the newer methods in blood chemistry give us a valuable aid in determining to what extent substances which should be excreted by the kidney are retained in the blood.—in other words, how much of its work the kidney is not doing.

In addition to the routine urinary examination, we have used the phenolsulphonephthalein test and blood urea determinations after the method of Marshall. We realize that these tests are not sufficient to classify all types of nephritis or to prognosticate them with any degree of surety, yet we feel that they are as a whole the most useful, and have accordingly used them in most of our cases. Sellard's test for acidosis we have found very practical and useful in that it is simple and seems to give very important information regarding the extent of acidosis. The other more elaborate tests such as carbon dioxide determination in alveolar air we have used but very little.

The cases have been so varied as to allow of no practical classification. Most of the cases studied have been surgical and obstetrical, where renal involvement has been secondary or complicating. The surgical cases have as a whole been very interesting because of the fact that a large number of them have shown poor kidney function with urea retention when there has been little or no change shown in the routine urinary examination.

As a whole the output of phthalein and the urea retention have run parallel, but in some cases this has not been true, especially in the acute toxic cases. In the cases of chronic nephritis, the lowered output of phthalein has been accompanied by a retention of urea in the blood. In acute toxic types where the liver is also involved in the process, the urea of the blood remains normal or is even decreased. One case of bichloride of mercury poisoning showed a zero phthalein output for two hours, with blood urea below normal, being in several examinations 15-20 milligrams per 100 c. c. of blood, the normal being 20-40 milligrams. This patient died in 36 hours. In most cases showing a decreased phthalein output the test of Sellard has been pronounced. In this test, which is essentially one in which we attempt to roughly estimate the degree of acidosis, the patient is given 5 grams of sodium bicarbonate by mouth. In a normal person this amount of soda should cause the urine to become alkaline. If the urine remains acid after such a dose of bicarbonate of soda it is indicative of acidosis. After a few hours another larger dose may be given and repeated in case the urine is still acid, so in that way we may arrive at a reasonably accurate determination of the degree of acidosis.

Regarding the surgical cases studied, we have been interested in the extent to which ether anesthesia will lower the phthalein output. In a series of some twenty cases in the service of Dr. Foy Roberson, a phthalein test and blood urea determination were made be-

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fore and after anesthesia. The tests were made 24 hours before the operation and within 24 hours after operation. We found that as a whole the phthalein output was reduced after an anesthetic to about one-half what it was previously. As might be expected, the blood urea was not increased after the anesthetic even though the kidney function was low, because of the toxic effect of ether on the liver as well as the kidney, and the production of urea is accordingly diminished. We have found that there is a mild to severe degree of acidosis following anesthesia as reflected in the increased amount of sodium bicarbonate required to render the urine alkaline. One of the most interesting features has been the large number of surgical cases with very little change in the urine showing a low phthalein output with blood urea retention. Cases of exophthalmic goitre have usually shown a low phthalein excretion with urea retention. In several cases of intestinal obstruction we have been able to confirm the findings of McQuarrie and Whipple in dogs. that these cases show very low phthalein outputs with tremendous retention of urea. Following relief of obstruction these cases show very marked improvement in renal function. This factor of reduced renal function no doubt plays an important role in the high mortality from the condition. It should emphasize the great importance of short anesthesia in operation for intestinal obstruction, with the use of nitrous oxide and oxygen anesthesia whenever it is possible.

Practically all the obstetrical cases studied have shown some impairment of renal function as evidenced by the phthalein test. Of course our attention has been directed almost exclusively on hospital cases, — cases usually with known kidney injury. Many cases not known to have serious kidney lesions have been found to show very low outputs of phthalein. Blood urea determinations, it must be remembered, on these cases may be very misleading if used as an index to renal function. In cases of impending toxemia, even with evidence of severe kidney impairment, the urea in the blood is usually reduced with a great increase in the ammonia nitrogen. So in these cases, which practically always show marked urinary changes, blood urea will not be increased but perhaps reduced. We have felt that with the phthalein test and the blood urea we have been able to sometimes differentiate between real toxemia of pregnancy, where the kidney lesion is secondary to the toxemia, and the cases of acute nephritis complicating pregnancy. In the so-called toxemia of pregnancy the phthalein will be low as well as in primary nephritis, but in the former the blood urea will be low because of the liver injury; in the latter it will be high because the liver is not affected and the urea is increased in the blood. We have seen several cases with phthalein output of 5-10% with blood urea estimations below normal, and the next day the patient go into toxemia with convulsions. On the other hand cases with 10-20% phthalein outputs with high blood urea have been more responsive to treatment, and we believe in the latter cases the condition was renal rather than general. It seems that the phthalein test deserves a wider use in pregnant women. The ordinary urinary examination, while of distinct value, is not so trustworthy. Very serious renal impairment may exist with the urine showing only a slight trace of albumen. With phthalein tests repeated at intervals of a month o thereabouts, as the case may demand, very valuable information of just the work the kidney is doing may be had. Especially is this true in cases known to have kidney injury in the early months of pregnancy. A continued decrease in the phthalein over any considerable period, which is not affected by treatment, should be a good guide in the later months when the physician considers interruption of pregnancy.

The medical kidney cases seen in hospitals are usually chronic ones with poor prognoses. In these cases the blood urea is of value when combined with phthalein test. The question in these cases is usually one of prognosis, and we have not been successful to scarcely any extent in doing this with the tests we have used. One case with from zero to 5% phthalein, and blood urea readings of 230-250 milligrams per 100 c. c. of blood, maintained this condition for 10 weeks and part of the time was walking about the ward. He finally went suddenly into uremia and died within 24 hours. Other cases with very much less retention of urea and with much higher phthalein outputs have died in shorter periods of time.

These cases show us that the kidney function tests are of little value in such cases. On the other hand, it is in the incipient cases

those of the hard-working business man or others who have beginning kidney injury, that the function tests are of greater value. We know that the response to treatment in early cases of nephritis is a very favorable sign, and it is with the blood urea and phthalein tests that we can with a fair degree of precision follow these changes.

In nearly all cases showing kidney injury as reflected in the function tests, there has been a mild to severe degree of acidosis. As stated before, we have used Sellard's test for determining this, and find it, though crude in some ways, to be very helpful. Some cases have had such a degree of acidosis that in spite of administration of as much as 3-4 ounces of sodium bicarbonate in the 24 hours the urine remained acid, showing that this large amount of alkali was used up without neutralizing the acids present. The acidosis has been most pronounced in the renal cases of pregnancy.

In all the cases studied we have found that rest in bed, with restricted salt-free diet (preferably milk) combined with alkalies, has raised the kidney function considerably. Both the phthalein test and blood urea tests show very marked improvement. The guide to the amount of alkali that should be given has been very slight alkalinity of the urine. Any alkali beyond this serves no useful purpose and may do harm. Of course the chronic nephritic when allowed to return home usually after a variable length of time relapses.

We feel that this line of treatment for cases showing kidney injury during pregnancy is very valuable. If the diet is controlled, alkalies administered, and elimination kept up, the kidney function will invariably rise. Function tests at intervals will show the progress of the case.

In the surgical cases, we have seen the tremendous fall in kidney function caused by ether anesthesia. Dr. MacNider, of the University of North Carolina, has shown that this fall in function caused by an anesthetic is associated with, if not definitely caused by, a disturbance in the acid-base equilibrium. He has shown that the administration of alkalies before an anesthetic protects the kidney and prevents to some extent the fall in phthalein following ether or chloroform.

The phthalein test, we believe, is the most useful of any test yet devised in determining the function of the kidney. The simplicity and accuracy make it easily the favorite for routine use. There are few fallacies in the test. We believe that the blood pressure does influence, certainly to some extent, the amount of phthalein excreted. In two cases of low systolic pressure (about 90) the phthalein has risen from 25 per cent. to about 50 per cent. when the systolic pressure was raised to 120. The presence of bile in the urine in several cases has interfered with the accuracy of the test, but as a whole it has been most satisfactory.

Blood urea determinations have been useful, but as a whole, are variable. The food intake, exercise and activity of the liver are all factors which tend to make it less useful as a test for renal function. In chronic nephritis and in acute uncomplicated nephritis it is useful, but we find it has little or no advantage over the phthalein test as a routine. Of course in metabolism studies the blood urea determinations are of great importance, but we do not believe that as a test for determining kidney function it is as reliable as the phthalein or blood creatinin determination. Our experience with blood creatinin has not been very extensive, but very promising. The stable amount in the blood, the little change caused by diet, etc., make it in these respects more important in determining kidney function.

Several points we feel we have had impressed with our work on the subject: *1st*, the large number of patients showing definitely low function where renal disease was not suspected after urinary examination: *2nd*, the great extent to which ether lowers kidney function even in cases showing normal function previously: *3rd*, the rapidity with which the function rises when the patient is taken thoroughly in hand and placed on suitable diet with alkaline treatment: *4th*, the great value of the tests with obstetrics. We feel that more general use of the function tests, particularly the phthalein, will enable the surgeon to select his cases with more accuracy and the obstetrician to diagnose and determine the extent of kidney injury complicating pregnancy, often preventing the catastrophes of a later pregnancy. To us the phthalein test has been, on the whole, the most generally useful.

Watts Hospital.

STRICTURE OF THE URETER AND TREATMENT.*

By LAWRENCE T. PRICE, M. D., Richmond, Virginia.

The subject of stricture of the ureter, like many other conditions with the advancement of medical science and the perfection of certain mechanical devices during the past ten years, has attracted the attention of urologists to the fact that strictures of the ureter do occur very commonly.

Considerable discussion has arisen as to the probable causes. Reviewing the anatomy of the ureter, you recall that the ureter has certain normal contractions or points of narrowing of the lumen of the ureter (see diagram), in the

male three and in the female four; namely, beginning from the vesicle end: First, at the meatus and where the ureter passes through the bladder wall; second, at the crossing of the iliac vessels: third, at the uretero-pelvic junction; fourth, in the female, where the ureter passes through the broad ligament. Between these points there are more or less dilatations of the ureter, which is normal and corresponds to the pendulous portion of the urethra in the male. The constrictions occurring at the meatus and the uretero-pelvic junction are the most definite. As in the urethra, under certain conditions, such as traumatism of various characters, a spasmodic stricture of the ureter may occur to the extent of producing symptoms. Pathological stricture is divided into congenital and acquired stricture. Bottomley reports a large series of congenital strictures. These unquestionably occur as congenital irregularities elsewhere. Such strictures may be located at any point in the course of the ureter and, as such, are rarely recognized short of the post-mortem table or during examination or operation for other conditions. Acquired stricture of the ureter is a quite common condition and up until a very few years ago was not recognized, nor was there ready means of treatment for this condition after being observed.

The majority of the acquired strictures of the ureter occur at the meatus and are secondary conditions to some bacterial infection of the urinary tract, or traumatism.

Under the heading of bacteria, the most frequent is tubercular bacilli, then colon, staphylococcus and gonococcus. A focal infection of some character remotely removed, such as diseased tonsils, sinuses, bad teeth or gastro-intestinal conditions, may be illicited; in others, a definite pyelitis or pyelonephritis.

In quite a number of cases a history of a chest tubercular infection, which has long since become latent, can be obtained and the healed areas can be demonstrated by X-ray of the chest, or an active tubercular involvement of the urinary tract either of the kidney or bladder. Tubercular infection of the kidney is accompanied by ulceration about the meatus, which subsequently heals, leaving cicatricial tissue.

Under the heading of traumatism we have the passing of calculi from the kidney, operations of the pelvis, and wounds of various characters.

In either instance the process of develop-

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ment of stricture is the same. Namely, destruction of the superficial mucosa, infiltration of urine into the tissue, inflammation and proliferation of the connective tissue cells and subsequently the formation of fibrous tissue. This newly formed tissue is quite dense and non-dilatable.

The age in which stricture of the ureter is most commonly seen is between twenty and

Figure 1.

forty years, there being no difference between male and female, which time is in keeping with the causes, though stricture of the ureter may occur at any age.

The symptoms of stricture of the ureter are not always clear-cut in but few instances. The diagnosis should be arrived at by exclusion. The average case will relate having had either a constant or irregularly occurring pain which may be acute or of a dull character, for over a period of several years. Associated with the pain there may be frequency of urination. Hunner, in a series of fifty cases, found that the average duration of symptoms was four and a half years. The pain usually occurs in the region of the kidney and radiates over the course of the ureter, as a stone in the kidney. If the stricture is spasmodic, relief will be obtained by the elimination of the cause of the spasm. However, in true pathological stricture, the symptoms vary according to the patulency of the lumen of the stricture. It may become acutely congested and the opening in the ureter entirely closed either temporarily or permanently. When this occurs the condition of hydronephrosis is the result. Associated with these attacks there may be chills and temperature. Examination of the urine may or may not show blood cells or pus. The relief of the symptoms by dilatation of the stricture, by passing of catheters or bougies when attempting to fathom the cause of the symptoms, will relieve the patient and thereby assist in making a diagnosis. The symptoms are quite similar to stone in the kidney or ureter and, if in the right side, to acute appendicitis, and at times the diagnosis is difficult to arrive at, particularly if an X-ray examination gives negative findings for a stone, the urine being negative and leukocyte count not made. The final diagnosis of stricture of the ureter is absolutely left to the cystoscopist and the results of his examination. If the stricture be at the meatus, a mere observation of the opening does not in all instances reveal the condition and it is not made out until an attempt to pass a catheter or bougie is made. However, in some cases a distinct ballooning out of the ureter with each functioning, causing a distinct tumor, may be observed, as in the case reported and shown by the accompanying drawing (Fig. 1). In others, the urine filters through the stricture constantly and thereby does not cause any definite dilatation above the stricture. Repeated efforts to pass the stricture with reducing size of bougie or catheter

Figure 2.

will ultimately reveal the size of the stricture, the procedure being the same as in the diagnosis of a stricture in the male urethra. The information obtained will give the location, character and size of the stricture.

Should the stricture be higher up in the ureter, the procedure is the same and the confirmation of these findings must be corroborated by an X-ray after a sodium bromide

or thorium solution has been injected into the ureter. If there be much hydronephrosis or hydro-ureter due to the stricture, the characteristic continued dropping of the urine will be observed from the catheter after the eye has been introduced beyond the stricture. Wax tip catheters or bougies in every instance should be used to determine the location, size and character of the stricture, ex-

Figure 3.

cept those occurring at the uretero-pelvic junction.

The treatment of this condition is quite simple, irrespective of its location, but, as in the external and internal urethrotomies, the method of procedure is governed by the location of the stricture.

Those located at the meatus and as high as the pelvic brim can be treated by dilatation and in those at the meatus, which do not respond to dilatation, meatotomy followed by dilatation produces the desired results. Those occurring above the pelvic brim must be approached by an opening through the abdominal wall and retrograde dilatation done. The dilatation with bougies through an operating cystoscope, such os the Brown-Berger, Brassch or Kelly instrument, is a simple procedure and, if the dilatation can be made complete and the patient seen at intervals to keep the stricture open, satisfactory results are accomplished. However, for those strictures of the meatus which are non-dilatable, the procedure is to first do a meatotomy with the Bransford Lewis scissors and dilate to the desired size and keep open by passing of bougies as above (Figure 2). Hemorrhage from the cutting is of no significance and does not require any attention.

The retrograde and dilatation operations can be done through any incision by which you can get to the ureter extraperitoneally. Should the stricture be at the uretero-pelvic junction, the pelvis of the kidney is opened and increasing sized bougies are passed. In the other portions of the ureter, the ureter is opened above the stricture by a longitudinal incision and dilatation accomplished and the wound closed in the usual manner after ureterotomy.

The following case is a typical example of stricture of the meatus, which shows with accompanying drawings the condition which existed.

Mrs. C. V. E., aged 37, married. She gave a history of having had a gonorrheal cystitis about ten years ago. Beginning eight years ago, she began to have pain over the region of both kidneys which was preceded by an acute pain on both sides, deep in the pelvis. The attacks of pain would be of an acute character and would be relieved by taking a hot hip bath. She was X-rayed for stone and various medical treatments were advised during the period until she came under observa-

Figure 4.

tion. A catheterized specimen of urine did not show anything but an occasional blood and pus cell. Cystoscopic examination revealed a negative bladder and apparently the ureter openings were normal in appearance but, upon closer observation, it was observed that with the functioning of each ureter there was a ballooning out of the portion of the ureter which passes through the bladder wall, on both

sides, causing a tumor the size of the end of the thumb with the meatus at the tip (Figure 1). After the functioning had been completed the tumor would disappear to re-appear again (Figure 5). Both sides were identical. An attempt to pass a No. 6 ureteral catheter was impractical, however, a No. 2 bougie could be passed but attempts to increase the size of the bougie were not successful. A No. 2 catheter was introduced into both ureters and specimens obtained, which showed microscopically in both specimens an occasional pus and red blood cell. A subsequent examination with the injection of thorium showed a dilatation of both ureters, the right being somewhat larger than the left, also a flattening out of the calices of both kidneys, manifesting the condition of hydronephrosis. This patient was subjected to a meatotomy with the Bransford Lewis ureteral scissors and dilatation with bougie up to No. 10 and subsequent dilatations at intervals. She was seen first in November of 1919 and, after the ureterotomy was done, she has not had any further trouble. The urine is negative upon examination and her health has improved and apparently is normal.

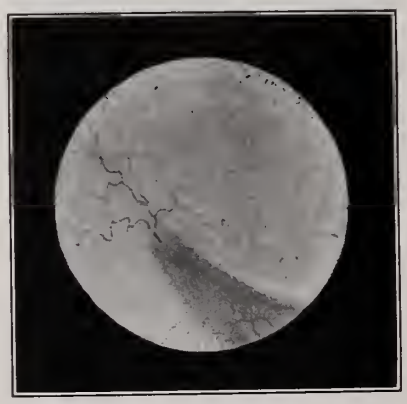

Figure 5.

SOME FOREIGN IDEAS ON PEDIATRICS.*

By JOHN A. FOOTE, M. D., Washington, D. C.

It is many years since our pediatrists thought that it would be a good idea to have mother's milk analyzed, and determine its percentage of proteids, fats and carbohydrates. It is enough to say that the statement was made that mother's milk contains 2 to 3 per cent. proteids, 4 to 5 per cent. fat and 6 to 7 per cent. sugar. To so modify cow's milk that it would conform to mother's milk in its proportion of proteids, fats, and carbohydrates was deemed a solution of the feeding problem. Holding to this idea as its gospel, the percentage method of feeding, with its wonderful and far-reaching effects on infant nutrition was inaugurated. Infant mortality rates decreased, otherwise hopeless cases of malnutrition were saved, and great and deserved honor was accorded the "American" school of infant feeding by percentage mixtures.

I feel certain that no one will dispute that the principles underlying our methods have been based mainly on the following propositions:

Mother's milk contains about the same amount of fat as cow's milk and contains more sugar than cow's milk. Casein appears in the stools of milk-fed babies when fat and sugar are well digested, and proteid is undigested. Hence, the proportion of the proteid of cow's milk should be relatively diminished.

The appearance in the stool of white particles, insoluble in ether, indicates the presence of undigested casein; to supply a colorine deficiency, it has been considered well to increase sugar and fat feeding while cutting down proteid. This, in brief, has been our custom, and generally it has worked well in most cases. Sometimes, however, it has worked badly. Some cases seemed to break all rules of the percentage theory. We have been very proud of our American school of feeding, and so perhaps we have not listened so intently as we might to what the foreigners have been doing.

In Germany and Austria are several iconoclastic men who are tearing down some of our temples of knowledge about infant feeding. One of these, named Heubner, analyzed the milk of 2,000 women and found that in our feeding scheme we had estimated our fat contents too high, our proteid contents too low, and he made the amazing statement that proteid was well digested by the average infant: fat poorly digested. Still further, he was helped to this conclusion by the fact that the alleged white curds in the stools are not

*Address before The Woman's National Society of Keep-Wells, Washington, D. C.

curds at all, and not fats, but fat scraps which are, of course, insoluble in ether, or else decomposed secretion of the intestine itself. We have all seen white particles in the stools, days after milk feeding has been stopped and after the bowels have been well emptied. These are the intestinal products mentioned by Heubner.

This is very revolutionary; it upsets some of our periods of time.

Long ago, Budin attempted to feed infants according to caloric requirements, estimating the heat-units of mother's and cow's milk in the usual terms, fat giving 9.3 calories, proteid and sugar each 4.1 calories, in each gram. Heubner has used his 2,000 cases to determine the average caloric requirements of infants of various ages, and discovered that for the first couple of months about 30 calories are required; second to sixth month, 40 calories, and sixth to twelfth month, 35 calories for every pound of body weight.

Backward children require the same caloric amount as if their weight were up to the standard for their age, say these observers, if these children are to be well nourished.

A disease due to fat overfeeding is described by Heubner, in which the child is stupid or restless, bathed in perspiration, perhaps with some fever and constipation. The urine is concentrated and ammoniacal, the stools gray and putty-like, showing fat soaps.

The child may vomit, and rapidly loses weight. At this time the over-zealous physician often adds fuel to the fire by increasing the fats to correct the weight deficiency. The remedy of Heubner is to feed a fat-free milk for a time and give the metabolism a chance to become normal. Very soon, on this treatment, normal stools and an increase of weight are observed.

The chemical pathology of the disease is explained as follows: The excess of fat in the intestine calls for an increased amount of alkali in order to form the necessary fat-soaps. This too rapid drain on the alkalies causes a condition of alkapenie, with an increased destruction of the proteid molecules and the liberation of ammonia. The ammonia combining with the fatty acids leaves an excess of acid products in the body tissues and acetone is not infrequently found in the urine. The objective symptoms are, in brief, the typical symptoms of an acid intoxication. This condition occurs with us not infrequently after the sixth month of infancy, being the period when we feed a maximum of fat.

Heubner's rules for infant feeding are simple indeed. Never give over 3 per cent. fat, and the proteid will take care of itself, is his dictum. Estimate what your caloric value should be and add whole milk, water and sugar up to the requirement, keeping the fat low. In most cases the baby will thrive if his caloric needs are satisfied, and any rational proportion is maintained between the ingredients.

As to the quality of the food: Budin's rule is to feed 1-10 of the body weight in 24 hours. According to his rule, a normal child of six months, weighing 15 pounds, should require 24 ounces of milk in 24 hours. This would seem to me too low an estimate. Actual weighing of 2,000 babies shows that they draw 1-5 of their body weight the first four weeks; 1-6 to 1-7 during 1st to 6th month; and 1-8 of their body-weight from the 6th to 12th month. Thus, a child of 6 months, weighing fifteen pounds, should have about 35 ounces of milk in twenty-four (24) hours, representing 40 calories to the pound, or 700 calories in all.

Supposing that we feed this child with what our American system has judged right —a 4 per cent. fat, 2 per cent. proteid, 6 per cent. sugar mixture, made by using as top-milk the upper half from a quart of whole milk and adding an equal quantity of water and 5 per cent. sugar.

This top-milk contains 7 per cent. fat according to the tables, and has 30 calories in each ounce. Sugar has 123 calories in each ounce. So, in 35 ounces of milk we should have 17½ ounces of 7 per cent. fat milk with a caloric value of 17.5 x 30, or 525 calories, plus 5 per cent, or 1.75 ounces of sugar (with a caloric value of 123 calories an ounce) 215 calories, or a total of 740 calories. This is 50 calories more than the average, even feeding only 5 feedings of 6 ounces in 24 hours, and we usually feed more than this. Here we see where our fat overfeeding may easily occur.

The principal use of Heubner's work is

that by his method we can accurately check up the food needs of our infants, using statistics worked out by conservative and careful investigators. This work in caloric estimation is only an example of what the Germans, especially those in Berlin, have done, and it is now being taken up by some American men, notably Walls and Abt, of Chicago, with very great success. It is not a new system, only a check on our old and loose system of theoretical feeding.

Another feature worthy of mention is Finkelstein's experimental work regarding the causation of fever in infants by sugar. He found that any crystalline substance, even common salt, would cause what he called alimentary fever in infants, and believes that the intestinal mucosa of infants suffering from indigestion is usually susceptible, in allowing ingress to the circulation, of unchanged crystalline substance with large molecules. This action he believes to be physico-chemical, and he was able to produce the symptoms almost at will, by feeding sugar to babies suffering from diarrhea.

It seems to be well proven by several other investigators that almost universally those abroad are using weak tea sweetened with saccharine as a beverage in infantile diseases.

The work of the same Finkelstein in infantile eczema—the exudative diathesis, as he calls it—is notable also in view of the prevalence of this malady. Believing that these cases show an undue retention of mineral salts, he feeds milk mixtures in which diluted whey is used as a base, thus removing the salts. He uses whey 3 parts to 1 of water, adding sugar about four per cent. This is especially valuable in fat children. Mendelsohn reports in Archives of Pediatrics three cases fed for several days in this manner, with excellent results.

From France comes a remarkable statement, and recently much attention is given to it, that pasteurized or sterilized milk does not of itself produce scurvy. We have all seen scurvy more frequently in artificially fed infants, and some cases in infants fed with boiled milk, but most of all we have seen it in infants fed with proprietary foods. Every now and then some one makes the statement that the pasteurization of the milk in itself does not cause scurvy, but that the raw milk is deficient in some vital principle, or the child is not able to elaborate all the constituents of the milk.

Variot, of Paris, who has since 1892 fed babies, some 400,000 bottles of, not pasteurized, but sterilized milk heated to 250° Farenheit, has reached certain conclusions after weighing and examining over 3,000 babies fed in this way: (1) That the milk retains all its nutritive value; (2) The calcium precipitation or destruction of enzymes does not affect its assimilability, and not one case of infantile scurvy has been seen in the 3,000 cases treated during the past year; (3) Atrophic cases thrive well on sterilized milk; (4) No case of rickets was seen; (5) Only three or four per cent of the babies did not tolerate the milk well; (6) Constipation and anaemia were not infrequent, but diarrheal diseases were rare.

Finkelstein and Budin report less cases but equally good results with sterilized milk. Berloz, in Grenoble, fed sterilized milk to a large number of children for three years. The mortality among those fed was 27.9 per thousand, while the mortality among those fed on ordinary milk was 69.0 per thousand.

Dr. Rosenau, reviewing this question recently, said, "so far as we are able to judge from the evidence at hand, raw milk has certainly no advantage over cooked milk." Carel of Paris, finds twice as many cases of scurvy among babies fed with fresh milk as among those fed cooked milk. American observers, however, have a contrary experience to this. Certainly it seems that with ordinary precaution, boiled milk may be more safely given to infants than milk polluted with bacteria.

There is danger of dirty pasteurized milk and of not keeping pasteurized milk on ice. Summing up: (1) If you cannot have clean raw milk, then use pasteurized; (2) Scurvy is a disease most common from 9 to 24 months; hence use orange juice after 8 months, and all danger is ousted; (3) Always use pasteurized or heated milk in very hot weather.

Perils of Infant Life.

Is the cow as black as she is painted? seems to be an unusual question. "Who," you will ask, "has attempted to blacken the character of this meek, mild-eyed, servitor of man, the

type through all the ages of the long suffering, uncomplaining, indispensable domestic animal? Who has attempted to convert this harmless creature into a vindictive, diabolical peril to our families and our homes? Who are these libelers?"

Well, to answer you, these libelers are a number of well-meaning gentlemen known as scientists, bacteriologists, pathologists, and physicians, whose business it is to run to earth the causes of disease. They have nothing personally against any cow; but they are entirely devoid of any respect for romantic associations or traditional beliefs when these former are opposed to facts discovered in the laboratory.

If you tell them that in the barbarous period of the development of any nation, the flocks and herds were man's chief source of wealth and sustenance; tell them that the pastoral poets drew all their inspiration from the contemplation of the herdsman, if you remember and quote them Virgil's Bucolics, or anything you please, they will answer in the prosiest prose that all these people suffered from plagues and epidemics, and that the milk they drank was not clean. And, when they get through with you, you will regard the erstwhile impeccable "bossie" as a bovine Herod, repeating in every age and clime the slaughter of the innocents.

All this began with the discovery of bacteria and the investigations into the bacterial origin of disease. Very early it was found that milk was one of the best media obtainable in which to grow cultures of bacteria. Bacteria flourished and grew in it with great enthusiasm and vivacity. Indeed, it was found that only in rare cases was it possible to obtain cows which did not contain bacteria in swarms, and the number ranged from a minimum of ten million to a quart, up to ten billions. Milk which had only ten million was considered low in bacteria. Moreover, it was found that it was bacteria that caused milk to sour; that milk would keep sweet for long periods of time if the bacteria in it were killed by sterilization. Also, that bacteria resembled human beings in some respects, there being good, bad and indifferent varieties; that is, good, bad and indifferent in respect to their action on the human economy. Some of these bacteria, we have learned, come from the body of the cow, and the dust and dirt of the stables; others from the hands of the milker and those handling the milk, or from the pails and pans used as containers. It is the latter sources of infection that are most dangerous, for here come what we have learned to call the "milk borne diseases."

Not very long ago, statistics, more or less incomplete, showed over five hundred epidemics directly due to contaminated milk. Typhoid fever leads numerically in the list of epidemics. Scarlet fever is next and dysentery occupies a prominent place in statistics. These are the diseases conveyed by infected milk. The sickness caused by impure or unclean milk are separate and apart and are no less important.

In nearly all the milk-borne epidemics of infectious diseases, the route of the milkman dispensing infected milk was blazed with plague signs. Following milk wagons to see whether the houses along the route contain more cases than those in other parts of the city has long been a favorite means of running down the cause of an epidemic.

Milk epidemics usually occur suddenly with almost explosive violence. They invariably follow the milkman and their spread is dependent on the amount of contagium in the milk and whether or not the dairy is a large one. The epidemic of typhoid fever in Stamford, Connecticut, in 1895, and 1900 epidemic in Elkton, Md., are among the many outbreaks traced directly to the fluid on which we are weaned.

The sources of milk contamination are many and various. Few ordinary employees take the precaution to wash their hands before milking—to do so is the exception, not the rule. A milker may be in the early stages of typhoid or scarlet fever, or he may have recovered from the disease long before and still harbor the bacilli—a chronic bacillus carrier. Or his hands may have become soiled while acting as a nurse to a case of typhoid, or he may be suffering from a case of pulmonary tuberculosis. So the part played by the milker with unclean hands is not an unimportant one, when we remember that a few bacteria dropped in the milk may become a million within twenty-four hours.

The air and dust of the stable may carry bacteria, or the milk pail may have been wash-

ed by some person suffering from, or in contact with, an infectious disease, or, it may have been washed in infected water from a well or stream. When milk is transported a considerable distance, there is always danger of contamination from individuals drinking from the cans or from the official "testers" in the dairies, who sample the milk to see that it has not soured.

Even the practice of dispensing milk in bottles is not without danger. Milk is much used in sickness and the milk bottle very frequently finds its way into the sick room. Unless all milk bottles are thoroughly sterilized before refilling, there is grave danger in their use.

The Montclair, N. J., epidemic of typhoid in 1902 is an example of milk-bottle infection. During the summer and autumn of 1902 Montclair had few cases of typhoid. On December first, several cases occurred along the route of milk from one particular dairy. The farm producing this milk was immediately investigated, but no evidence to show the source of infection could be found.

All persons coming in contact with the milk were, and had been in good health. Then an interesting fact was unearthed. It was discovered by the health sleuths that cases of typhoid occurred only in those houses which had received milk in pint bottles. Those who received quart bottles and half-pint cream bottles were untouched. Still, no reason could be found for the epidemic.

But cases continued to be reported along this route, and the sale of milk from this particular dairy was stopped. After two weeks there were no more cases.

For awhile the cause of the attack remained a mystery. Finally, it was learned that a man from New York came to Montclair in the beginning of an attack of typhoid and that he remained for a few days at a house supplied with milk from this dairy. The house had been furnished every day with pint bottles of milk. The empty bottles were removed, refilled without sterilization and returned to other houses, full of fine, promising young typhoid bacteria. As a result, eighteen cases occurred in Montclair and ten in Bloomfield, all in homes supplied with pint bottles of milk from this one dairy.

No dairy then should be trusted that does not boil its returned, empty milk bottles. Walk into any sickroom in a crowded tenement and, ten to one, you will see a milk-bottle with more or less milk in it, standing on the window sill. Let the patient be afflicted with scarlet fever, diphtheria or typhoid, and you may be certain that the remaining milk in the bottle will contain many bacteria capable of transmitting the disease, unless they are killed by heat.

Health Department Matters.

In the matter of simple cleanliness of the large cans in which milk is shipped, there is an important issue. Extreme care must be taken to see that the water with which cans are rinsed is clean and uncontaminated. In the country, especially, cans are not infrequently washed in the flowing water of little brooks and streams and set out to drain and dry. This is all very well if there is no sewerage along the course of the creek to pollute the water. But let a single drop of polluted water be left in the can and forth stalks the awful plague. This, in fact, is proven to have actually happened in more than one case. More than one epidemic of fair proportions has occurred through the washing of milk cans in the waters of a "little babbling brook." There is a good deal of poetry connected with the "little babbling brook," but alas, even kisses, say the scientists, are laden with bacteria. Therefore, the bubbles should be boiled out of the brook before its water is used to rinse milk-cans. The board of health has said it.

"But, the health authorities are frightening us needlessly," you will say. "Very rarely do we have milk contaminated with infectious diseases. And the good, rich, lacteal fluid that we were raised on is not so dangerous as you have represented it or we would none of us be alive today." A very good point, but it raises another phase of the milk question.

Human milk and cow's milk are different in their composition and especially in that the latter is not contaminated by shipment or otherwise. Many of us were raised on breast milk. But the rush of modern life has changed things materially.

The very rich woman who fights for her place in society and the very poor woman who struggles for her existence in sweat-shop or factory, both of them turn their infants over to the bottle and the "deadly cow." The re-

sult is, while we are doing wonders in all sorts of fields of endeavor, we see we have not been holding our own in the prevention of infant mortality. The statistics of the U. S. Census office for 1905 show over a half million deaths from all causes, and of these over one hundred and five thousand, among infants in the first year of life, and fifty thousand alone died of intestinal or milk diseases. For the same year in England and Wales, the rate was no less appalling, and the Register General of England said in comment: "It has frequently been pointed out in the reports that although the general mortality in this country has steadily fallen in the course of the last half-century, nevertheless, infants in the first half year of life have not shared in the benefit. About one-fifth of the total loss of life in the first year after birth takes place within a week of that event while, by the end of the first month, the proportion reaches one-third, and by the end of the third month it exceeds one-half. From the first to the fourth month diarrheal diseases steadily increase in destructiveness, after which month they become less fatal, although they still contribute seriously to the death rate throughout the first year of age."

People over ninety years of age and children under six months of age have the same death rate.

One third of all the deaths in Paris from 1892 to 1897 were from digestive diseases of children. In Germany a few years ago, out of all the children, about one-fourth succumbed during the first year of life.

And while about two hundred deaths per thousand occurred during the winter months of the year, five hundred deaths per thousand births was the toll exacted by the summer months of heat and dirty milk—one out of every two children born died in the first year during the summer months!

This seems rather appalling, and it is a formidable question. France and Italy are so concerned about it that women engaged in industrial occupation are not allowed to turn their infants over to the mercy of the cow, and a lessened mortality has followed.

Madam Dluski, in France, says 99 per cent of mothers can nurse. The belief seems to be that American mothers can also nurse, but must choose between that and other things. Plain food, water and exercise are requisites. The effect of all is important.

The peril is very real with us. In the capital of the nation, Washington, the infant death rate in 1900 was 274.5 to every thousand, the year round. This was the same rate as in "darkest Russia" so we cannot boast that we are any better than our neighbors. But the Health Department of Washington, and the U. S. Public Health Service are now studying the milk question very thoroughly.

There is peril then in unclean bacteria—contaminated milk, dirty stables, uncleaned animals, carelessness in handling or cooling the milk—all these are factors in the spread of infantile diseases.

We would not allow our breakfast to be served in an unclean stable by a man with soiled hands, yet that is how the baby's breakfast is prepared. 740,000,000 gallons of cows' milk were consumed in the United States in 1899, according to the 1900 census report. And there were at least an average of 100,000,000 bacteria in every gallon of that milk. Is it any wonder that the babies were sick when we consumed a hundred million times seven hundred and forty millions of bacteria? Although these bacteria are so small in length that it would take 25,000 of them to measure an inch, yet their aggregate, if placed end to end, would make an army reaching from the pole to the equator seven hundred and forty times.

Let us not forget the peril of infantile tuberculosis from the milk of tuberculous cattle, even though tuberculin tests of herds are gradually eliminating that danger. Very recently it was shown by this means that one-third of the cattle supplying milk were tuberculous. Legal steps have abolished still another peril, since keeping milk sweet by the addition of poisonous formaldehyde, has rightly been made a penal offence.

In spite of all good work and legislation the problem is still with us. How is it being met? In many of the large cities milk-depots similar to those inaugurated by Nathan Strauss, in New York, are being established. Here poor people may obtain clean pasteurized milk at a normal cost.

Pasteurization is a process of heating milk to a definite temperature below the boiling point (60 degrees centigrade) for a sufficient time to kill harmful bacteria. Besides this,

the dispensaries for sick babies are teaching mothers the necessity of using human milk for infants. And most important, legal steps are being taken in many communities to insure clean milk: dairies are being inspected and approved or condemned as the case may be. Certified milk, that is milk conforming to tests for a minimum of bacteria and a proper standard of nutritive values, is now obtainable from private concerns, whose sanitary stables and dairies are a revelation to those who kept cows in the good old way that made "cow-pen" a synonym for uncleanliness.

In these establishments the milkers wear white clean suits over their dusty clothes. The stables are clean and the cows are brushed and washed before milking. Sterilized pails are used and each milker scrubs his hands before milking. The milk is placed in sterile bottles rapidly chilled in ice and shipped in this way to the consumer. Milk such as this will keep sweet for days.

And so it is not the cow that is to blame after all. Poor, much abused animal, we owe you an apology; you are only partly responsible for the evil in your name!

We are learning slowly enough that mother's milk is the best food for the baby, but, cow's milk need not be a poison. Do you know where your dairyman buys his milk? Have you ever been to his farm? Perhaps it may be worth your while to know whether the milk you use is reasonably clean by inquiring at the Health Department.

No matter how good or rich your milk may be, if it sours early it is unfit for use. Find a dairy, if you can, that sells certified milk or that will keep pasteurized milk. And then you will not blame the "deadly" cow for all the wickedness that at first sight seems to be attributable to her.

1726 *M Street, Northwest.*

REPORT OF CASES OF CEREBRO-SPINAL SYPHILIS.*

By CHARLES BERNARD PRITCHETT, M. D., Danville, Va.

There is perhaps no other one disease which has received more worth while contributions than has syphilis in the past fifteen years. Beginning with the discovery of the causative agent, scientific knowledge has rapidly progressed until this disease can now be considered thoroughly controlled, not only as to diagnosis and prognosis, but also treatment. Syphilis is the very beginning of differential diagnosis: it plays a constant role in almost every physician's daily practice. It is a common experience today to hear from a tabetic or an old cardiac syphilitic the story of a slight sore, its cauterization by a physician, the taking of a few pills, and then nothing more in the way of treatment or symptoms until the grave, and possibly hopeless, lesions of late syphilis make themselves manifest.

Twenty years ago it was considered good practice to await the development of secondaries, not only for the purpose of establishing a diagnosis on a firm basis, but also to convince the patient of the correctness of this, and thereby insure his co-operation in treatment. This delay simply means waiting until there is a wide invasion of the system, and thus losing the advantage of eradicating the infection while it is yet local. There is no other infection in which one would consider postponing for a single moment the steps necessary to prevent systemic involvement. This insufficient, or neglected treatment of syphilis, has resulted in the return of latent symptoms which come under our observation, too numerous to classify. However, the involvement of the central nervous system is so serious and so frequent that I would, without hesitation, give it first place. The classic syndrome of symptoms, as described by Erb, is so familiar to every one that it is hardly necessary to even be on guard while making a simple physical examination in order to recognize an early case. When additional proof is sought from the laboratory, I think it worthy of mention to lay stress on the fact that a negative blood Wassermann does not necessarily rule out syphilis of the central nervous system. A lumbar puncture should be done and a careful serological and microscopic examination made before one can rule out either general paresis or locomotor ataxia.

Syphilis of the central nervous system is an infectious disease due to the Treponema Pallidum. It was formerly thought that there were two distinct groups of syphilitic disease of the nervous system: The first being characterized by specific or gummatous inflammatory lesions attacking the nervous tis-

*Read at the meeting of the South Piedmont (Va.) Medical Society, in Danville, April 20, 1920.

sue and its coverings, by way of the blood vessels. The second group was spoken of as para-syphilitic disease, characterized by degeneration of nerve tissue. At the present time both groups are recognized as active syphilis, due to the same infectious agent. Although the underlying cause is the same in all forms of lues of the nervous system, there are two groups recognized as distinct clinical affections. In group one, the infection attacks by way of the vessels and membranes, that is, it is an interstitial form; while in the second group the nerve tissue itself is attacked. This parenchymatous form includes paresis and tabes dorsalis. Noguchi's discovery of the spirochete in the tissue of the central nervous system has placed paresis and tabes in the group of true infections; and other studies of the spinal fluid have brought out the fact that the foundation of these lesions of the central system is laid in the early stages of the disease, probably at the time of the first great generalization of the spirochete; more than one-half of the cases of syphilis show evidence of disturbance of the spinal fluid at this early period.

In tabes and paresis, or parenchymatous nervous syphilis, the orthodox anti-luetic treatment does little good. For some reason not explained, drugs which act on syphilis of the exudative form do not produce any such results when the spirochete has invaded the nerve tissue itself. It has been found that with either mercury or salvarsan circulating in the blood, practically none can be found in the cerebro-spinal fluid.

There are various methods in vogue which attempt at a more or less successful medication directly by way of the sub-arachnoid space. Swift and Ellis devised one of the most useful. By this method the patient is first given an intravenous injection of salvarsan or neo-salvarsan. After an interval of twenty minutes to one hour blood is drawn from a vein. The serum from this, after standing over night, is thoroughly centrifuged, and inactivated at a temperature of 56° C. Ten to 20 mils, diluted with equal parts, or double amount of salt solution, is then injected intraspinously. This is usually given 24 hours after intravenous injection. The advantage of this technique lies in its simplicity over the other methods which require operative procedure, such as administrative serum intracranially. The disadvantage lies in the handling of the serum, which entails danger of contamination.

The results in all forms of treatment of cerebro-spinal lues are discouraging—the best that any one can hope for, in most cases, is to arrest the progress of symptoms. In our work we have had only four such cases within the past year, and as they all seem benefited by a much simpler procedure, one that may be carried out easily and safely in the hands of the average practitioner, I am glad of this opportunity to bring this method to your attention. I do not know who originated it. It is simply a modification of the Swift-Ellis. Acting upon the theory that the spinal fluid, when diminished below normal, is rapidly regenerated from the blood stream, the method is simply to follow the intravenous administration of "606" by lumbar puncture, removing from 10 to 30 c.c. of fluid, according to the amount of intra-spinal pressure. This is repeated every five days until five doses are thus given. After an interval of a few months, during which mercury and iodides are administered, the course is repeated. This should be kept up indefinitely, regardless of the Wassermann reaction. Too much stress cannot be laid on the fact that mercury must not be omitted in any form of nervous syphilis. When early diagnosis is made, that is, before serious destruction of nerve tissue has taken place, one may even look for improvement. Other cases are more refractory and one does well to bring the disease to a standstill. Even in these, however, lightning pains, nocturnal headaches and distressing bladder symptoms are very likely to disappear. I do not believe that reflexes can be restored or an ataxic gait cured by any form of medication.

The four cases which I present are each entirely different, and I trust will bring forth an interesting discussion for our mutual benefit.

Case 1. Age 35, male, white, married; occupation, decorator.

Complaint: Weakness in right hand and arm; headache, retention; loss of memory, difficulty of enunciation and nervousness.

Family History: Negative.

Past History: Unimportant until one year

ago (unable to get history of primary lesion on account of aphasia.)

Physical Examination: Reflexes exaggerated. Pupils equal and react to L. and A. Blood Wassermann, triple plus.

Present Illness: Began one year ago with peripheral neuritis and increased irritability. Nervousness, headache, loss of memory, difficulty in speech. Symptoms grew progressively worse until he became incapacitated in early December. Was admitted to the Danville General Hospital. Patient was emotional, had no control over himself, apprehensive and delirious at intervals. He also had delusions and hallucinations. At this time incontinence began which lasted several weeks. He remained in the hospital six weeks, during which time he improved under iodides and mercury except his aphasia. Was discharged in six weeks and came to the office at seven day intervals where he received six doses of 6-10 gram "606", followed by 10 injections of salicylate of mercury.

Result: Greatly improved and able to attend part of former duty.

Diagnosis: Gumma of meninges, or exudative syphilis.

Case 2. Age 38, male, white, single; occupation, clerk.

Complaint: Slight difficulty in walking. Headaches, loss of libido, loss of memory, confusion of words and thought. Gastric distress, associated with sharp darting pains.

Family History: Negative.

Past History: Typhoid 1906, chancre 1906, with secondaries. (Two years' treatment iodides and mercury. 1914 one dose of "606.")

Present Illness: Began one year ago, with difficulty in getting around in the dark, indigestion, nervousness and malaise.

Physical Examination: A. R. Pupil. Deep reflexes absent, slight ataxic gait, positive Romberg. *G. A.* Hyperacidity and hypersecretion. Spinal fluid Wassermann, triple plus; blood Wassermann, triple plus.

Admitted to Edmunds Hospital Jan., 1920, five doses of "606" with lumbar punctures. Discharged greatly improved and instructed to report again in two months. He was given proto-iodide of mercury to take during his absence, and put under the observation of his family physician. Returned April 12th, mental confusion cleared up, no signs of ataxia. A. R. pupil still present. Romberg positive, deep reflexes absent. Gastric distress entirely relieved; no headaches; libido increased.

Diagnosis: Early locomotor ataxia, or parenchymatous syphilis.

Case 3: Age 56, male, white, single; tobacconist.

Complaint: Marked difficulty in walking, severe shooting pains in limbs and body. Needle and pin sensation in soles of the feet, difficulty in voiding. Weakness. Loss of tactile sense in both hands. Gastric distress, impaired vision, failing memory.

Family History: Negative.

Past History: Negative, except chancre in 1910, with secondaries. Potassium iodide and mercury given for several years; later had several intravenous salvarsans at long intervals.

Present Illness: Began three years ago. Progressively worse.

Physical Examination: A. R. Pupil, deep reflexes absent, positive Romberg, ataxic gait, gastric analysis normal, blood Wassermann, negative. Spinal fluid, positive.

First course of lumbar puncture with "606", one year ago. Five doses. Result improved. Discharged, told to report in two months and keep up treatment. Returned nearly a year later, after a strenuous season on tobacco market. Condition practically the same as before taking treatment. Admitted to Danville General Hospital in February. Second course given which resulted in disappearance of symptoms except so far as ataxia, which is unimproved.

Diagnosis: Locomotor Ataxia.

Case 4. Age 65, male, white, married; fireman.

Complaint: Difficulty in walking, mental confusion, headaches. Impaired vision, difficulty in voiding, weakness on slight exertion.

Family History: Negative.

Past History: Chancre, 25 years ago; local treatment, no secondaries.

Present Illness: Began 12 months ago. Course of 6 doses of lumbar puncture with "606" given in January and February, followed by 8 injections salicylate of mercury.

Physical Examination: A. R. Pupil, unequal Pupils. Positive Romberg, K. K. absent. Blood Wassermann, positive; spinal fluid, positive.

Diagnosis: Locomotor ataxia.

Result: Marked improvement.

This modified technique seems to produce as much benefit as does the Swift-Ellis treatment. It is simple, free from danger, and so far we have had no untoward reactions. It is interesting to note that none of these patients with positive spinal fluids showed any discomfort from the lumbar puncture; on the other hand there seems to be an immediate feeling of improvement. This was noticed in Case 4, whose interspinal pressure was rather low. (Had to have patient in sitting position in order to obtain a flow of the fluid.) The only reaction I have noted was in a suspected case, who had a positive blood and a negative spinal fluid. He suffered intense headaches for several weeks after the tapping. The treatment was discontinued as the laboratory report of the spinal fluid was entirely negative.

CRIMINALITY AND MENTAL UNSOUNDNESS.*

By JAS. K. HALL, M. D., Westbrook Sanatorium, Richmond, Va.

An occasional request to examine a prisoner and to offer in court a medical opinion about his mental condition has tended to deepen my interest in the possible relationship between crime and mental unsoundness. Although unwilling to assume that criminality is always an expression of mental abnormality, yet I doubt not that the criminal is often such for the reason that he has not sufficient judgment to be otherwise.

It is no longer easy even for an intelligent man to be law-abiding. We live in a meshwork of laws. I doubt not that I violate some law every day that I live. Much of our daily activity is under the influence of controlling forces that radiate from the seat of Federal authority. The Great Father in Washington takes a paternal glance at what we eat: he observes what manner of raiment we wear: he has withdrawn the bowl from our thirsting lips, and now he estimates character by every word that proceeds out of the mouths of his children. A sound mind is necessary for an understanding of the reasons for all this governmental repression. A firm will is necessary to make submission to it possible. The mentally unsound cannot understand it nor can they always subject themselves to it.

It would be interesting to ascertain as the result of a psychiatric examination what percentage of the entire population would show some deviation from the mental normal. It is not difficult to imagine that at least two or three per cent of the whole population would exhibit at least some degree of deviation. In this group of individuals showing mental unsoundness are to be found beyond a doubt the majority of so-called criminals.

Some of you will remember having read in Mental Hygiene, for January 1918, the report of Doctor Bernard Glueck. In this article, Doctor Glueck, who was psychiatrist to Sing Sing prison, gave the result of his examination of 608 prisoners who were admitted consecutively in a nine-months' period to this prison. He found that in this group of men, 59 per cent exhibited perceptible deviation from the mental normal. Of this number 12 per cent. showed mental disease or mental deterioration; 28 per cent were mentally defective; and 19 per cent were the so-called psychopaths.

It may be surprising to some of you to know that Sing Sing prison is filled with little children—yet Doctor Glueck says that of these 608 admissions in only nine months, 171 were mentally infantile. No one of these had the mental equipment of a child of even twelve years. Some of them indeed were mentally scarcely five years of age. Thirty-six prisoners were suffering from dementia praecox; three were paranoiacs; fifteen were alcoholic and drug addicts; and thirteen were mentally disordered as the result of chronic syphilis of the central nervous system.

It is revolting to think that mental children are daily being subjected to the hardening influences of prison life, yet Doctor Glueck states that he saw 171 little children sent from the courts of justice into Sing Sing. It seems scarcely less cruel to think that insane men are sent by the courts of justice to a penitentiary to do penance for crimes for whose commission they could not be held mentally or morally responsible, yet Doctor Glueck says that in nine months he saw 188 insane men admitted to this prison.

Those of us who live amongst mental pa-

*Read before the meeting of the Tri-State Medical Association of the Carolinas and Virginia, at Charlotte, February 18-19, 1920.

tients and give thought to problems of mental abnormality know how often attention is first called to the possibility of mental disorder in some individual by some overt act, some so-called crime, big or little, or some other violation of social custom. Insanity as applied to the mind is too general to imply more than unsoundness. It is a legal rather than a medical conception and we should encourage the cessation of its usage. If possible, a definite, clear-cut diagnosis of the mental disorder should be made, as definite, for instance, as lobar pneumonia or acute appendicitis.

But, regardless of the type of disorder exhibited by the abnormal mind, we cannot go far wrong in conceding that so-called insanity manifests itself sooner or later as disorder of behavior. The insane individual behaves unlike those around him. His conduct deviates from the standard of the community—as well as from his own normal standard. Ideation expresses itself in behavior, in conduct, in doing, or in failure to do. One of the functions of the body is to portray to the world states of feeling and of intellect. If this behavior be abnormal we may rather safely assume that the mind out of which all conduct springs is likewise unsound. And yet, if this behavior be of a certain type, a court of justice solemnly pronounces the doing a crime, and the doer pays for his doings with his money, his labor, or his life.

Bad laws may be violated by good men; if so, we extol them. From the technical legal point of view, some of the great figures of history were criminals, Moses, Socrates, David, Julius Caesar, Cicero, Cromwell, George Washington, Jefferson Davis, Lee and Jackson. Violation of the great common law should imply either criminality or mental unsoundness. Legal procedure properly takes into grave consideration the impelling motive, the driving force back of the criminal act. Under proper circumstances, the killing of a national enemy is a manifestation of high patriotism. Under circumstances other than self-defense, the killing of one's fellowman constitutes murder—the greatest of all crimes. Yet the deluded individual may be impelled in killing by a motive of which he is not ashamed and a motive which justifies in his own mind the slaying of his fellow. The legal inquiry reaches back to but no farther than the motive. The so-called insane individual may understand clearly the nature of the act, and comprehend its consequence rather fully, but he cannot understand that he is deluded. As soon as a delusion is understood by the individual who entertains it, at once it ceases to be a delusion. It is the function of the medical man to determine whether the dominating idea back of the crime is delusional or rational. A crime is not an act, but it is an act plus a particular state of mind.

Criminality may be an early manifestation of dementia praecox, especially of the paranoid type, in which murder may be committed; even incipient mania may be the underlying cause of inexplicable disorder of conduct; the genuine paranoiac is practically always potentially a criminal; and the despondent, suspicious, apprehensive person not infrequently commits an assault on himself or on another. Sexual assaults are undoubtedly often the result of mental disorder. Organic disease of the central nervous system frequently brings about mental aberration during which anti-social behavior of any kind may be only a symptom. I think in this connection especially of brain tumor, meningitis, injury to the skull, cerebral concussion, chronic hydrocephalus and head and brain injuries during labor. Epilepsy may produce a mental storm without the usual accompanying physical disturbances. I feel that a certain number of crimes are committed by psychic epileptics. It must be true that occasionally the pre-epileptic state and the post-epileptic state are filled with acts of which the epileptic is not conscious and for which he is not responsible. Many, many times, syphilitic processes in the central nervous system, acute or chronic, exhibit themselves first in violent conduct. Even the incipient paretic is liable at any moment to commit a criminal act. A latent organic or a constitutional disease may suddenly bring about mental disorder of profound degree. You will immediately think of nephritis, which may cause either coma or wild delirium. Circulatory disorder, originating in cardiac disturbance, or in pathologic changes in the vessel walls, is not infrequently attended by grave mental symptoms. Only a few days ago a man suffering from pernicious anaemia was brought to us in wild delirium, which had

developed with the most unexpected suddenness. Certain intoxicating substances taken occasionally or habitually are often responsible for temporary or more permanent abnormal mental states. Amongst these intoxicants we think oftenest of alcohol and opium. We must ever remember the feeble-minded—those unfortunate individuals whose physical growth generally keeps far ahead of their mental development. Defective judgment or lack of inhibition often leads them into crime.

Every individual brought to the bar of justice is supposed in the eyes of the law to be innocent of wrong-doing until his guilt has been clearly established. The individual is supposed also to be physically and mentally sound. Society, so jealous of human liberty, provides, through appointment by the court, even a pauper with counsel and other means of defense, but it generally makes no effort to ascertain whether or not the individual is either physically or mentally sound. The slightest intimation from the defense that the so-called criminal act may have been the result of mental disorder almost always calls forth from representatives of the state the rejoinder that the plea of insanity is the plea of necessity or else the plea of desperation. I contend that each and every individual, before being deprived of liberty or life, should have the benefit of a careful and comprehensive physical and mental examination. Such an examination should be made by a medical commission, which should be a part of the regular judicial machinery of each State. And then, before the trial is entered upon, the judge and counsel on each side should have in writing the report of this medical examining commission.

Clinical Reports

MATERNAL IMPRESSIONS.

By F. J. MORRISON, M. D., Suffolk, Va.

In spite of the fact that maternal impression is not generally accepted, we do, now and then, have unfolded to us a supposed cause, elaborated by the patient and firmly believed in: so firmly that no amount of argument will convince the patient that her belief is unfounded and not borne out by scientific investigation. How many of us have seen this effect in the deformed child attributed by the mother to impressions received while pregnant, and it did look as though there might be some foundation for the belief! I am not ready to accept the belief myself but will relate the case seen in consultation with Dr. O. R. Yates, of this city.

Mrs. G., age 37. Healthy, and the mother of five normal and healthy children with no history of harelip in the family, consulted her dentist in the early weeks of pregnancy before her condition was known to herself. Two teeth were extracted from the upper gum. In a short time she became aware of her pregnancy and was told by several of her neighbors that she would surely give birth to a baby with a harelip. She became obsessed with the idea and talked it over with her physician time and time again. Nothing could induce her to believe otherwise and, as time went on, the more convinced she became that the prophecy would be fulfilled.

On March 18, 1920, labor began and in a few hours she was delivered without any trouble. The first question was, did the baby have a harelip, and upon examination, lo and behold the baby was so deformed, but in every other respect normal. The following day, with the assistance of Dr. Yates we repaired the harelip which was a simple harelip with no cleft palate.

Most writers call the belief a superstition, harmful and absurd, but what argument could be brought to bear to convince this mother and her friends that maternal impressions are a myth! I dare say there is none, nor did we try.

Public Health Department

In The Tuberculosis Field.

The National Association.

Tuberculous infection is practically universal. There is, from this well-nigh universal infection, an increased morbidity, but a decreased mortality in the United States. Therefore, encouraging results, in the light of the present-day knowledge, may be expected from efforts to raise the resistance to tuberculosis.

These were points emphasized at the Sixteenth Annual Meeting of the National Tuberculosis Association, held in St. Louis, April 22, 23 and 24. Six Virginia tuberculosis work-

ers attended the national meeting, and two of the Virginians were represented on the program. In many respects it was one of the most interesting meetings held in the fifteen years the association has been in existence.

Dr. Victor C. Vaughan discussed "The Present Status and Future Prospects of the Tuberculosis Campaign," of which the following is an abstract:

It seems to be thoroughly established that practically no child is born into the world with tuberculous infection. Tens of thousands of autopsies and many more applications of the tuberculin test have demonstrated the fact that congenital tuberculosis is exceedingly rare. Besides this, the weight of opinion at present is that there is no inheritance nor even a predisposition toward this disease.

While during the fifty or more years preceding the World War the death-rate from tuberculosis was constantly decreasing, the percentage of tuberculous infection has been increasing. In other words, we have a lessened mortality from this disease and a greater morbidity. The causes of this increase in tuberculous infection should give us great concern. It has been shown that the greatest increase in tuberculous infection has developed in cities, and especially in those cities where the homes are overcrowded. While tuberculous infection has greatly multiplied in cities, and while much of our rural population is still badly housed, the rate in the increase of tuberculous infection has been most marked in the cities. Quite one-half of our population is today living in cells. Some of these cells are crude and unfit for human habitation, while others are gilded and supplied with richest ornate furniture; but all are cells.

Housing is the greatest problem, as I look at it, in the tuberculosis campaign and the greatest factor in the increase of tuberculous infection. There must be something that will turn the current and drive our people from the cities to the country. The time is coming and coming quickly, when the scarcity of food and clothing will drive the people from the cities to the country. This will right itself in time; but how great the cost to the nation I am not able to estimate.

In our cities, nearly 100 per cent. of the adult inhabitants are already infected with tuberculosis. It is a serious question how nearly normal any individual or mass of individuals can be when all are infected with the bacillus tuberculosis. I am inclined to the opinion that the well-nigh universal infection with tuberculosis now existing among us is already telling upon our national character. If universal infection with malaria had anything to do with the decline of Greek and Roman civilization, what may universal infection with tuberculosis do for us? It may be that some twenty centuries in the future some learned professor will write a monograph entitled, "Tuberculosis as a Factor in the Decline of the Civilization of the Twentieth Century."

We are very properly establishing tuberculosis sanatoria, hospitals, and colonies for the care of those afflicted with this disease. We must continue to do this, but we must realize that we shall never eradicate the disease by these measures. In order to eliminate this disease and its evil consequences, whether they be manifest in increased death-rate or in increased morbidity, there must be radical changes in our methods of living.

Unskilled labor is now demanding six working hours a day and five days a week, and we sneer at him for making such a request. If every adult worked four hours a day in some productive capacity, there would be no scarcity in any of the necessities of life. It is estimated that, even with crude agricultural implements, the average number of hours per year necessary to get the greatest production from an acre of land amounts to only 220. There is much justice in the demand of the unskilled laborer, but the trouble is he at the present would not wisely spend the remaining eighteen. A large number of unskilled workmen break down at present from tuberculosis, but their misfortune is not due to the hard labor, but to the manner and place in which they spend their non-working hours.

Man will ultimately eradicate this disease, just as we have placed malaria, yellow fever, typhoid fever, the bubonic plague, and other diseases under our authority, but before he can accomplish this great task, there must be a radical change in the manner of living. In the meantime, it is our duty as physicians and health workers to educate the people, especially the children, to build sanatoria, hospitals, and colonies, but we must recognize at

all times that these are only mile-stones on the road of human progress, and that they must be passed and left far behind before man reaches that degree of intellectuality which is essential to proper living.

B. L. Taliaferro.

Proceedings of Societies

The Bedford County (Va.) Medical Society

Held its regular monthly meeting in Bedford, May 24, with a very good attendance. Every white physician in the county is a member. Several cases were discussed, and last, on account of the high cost of living, the advisability of increasing fees was discussed, and it was decided to have a call meeting on the 27th of May to agree on a fair increase for medical services.

The following officers were elected: President, Dr. J. A. Rucker, Bedford; vice-president, Dr. M. W. Gibbs, Bellevue; secretary-treasurer, Dr. W. O. McCabe, Thaxton. Dr. Alfred B. Claytor, of Philadelphia, who has recently located in Bedford, was admitted to membership.

W. O. McCabe, *Secretary.*

The Alexandria County (Va.) Medical Society,

At its last regular meeeting held May 26, changed its name to Arlington County Medical Society, the name of Alexandria County having been changed, by act of Legislature, to Arlington County, to take effect June 15, 1920. The present officers of this Society are Dr. Edward McCarthy, Cherrydale, president, and Dr. B. H. Swain, Ballston, secretary-treasurer.

The society holds meetings on the last Wednesday evenings, bi-monthly, at the residence of a designated member. Excellent programs are given. The fraternal spirit is fully evident and good fellowship cultivated. Annual dues are 50 cents.

B. H. Swain,
Sec.-Treas.

Roanoke Academy of Medicine.

At the regular meeting of the Academy on May 3, Dr. Ben Witt Key, of New York City, read a paper on "Related Ocular and General Conditions." The discussion was opened by Dr. Emory Hill, of Richmond, Va. Dr. James J. King, also of New York City, read a paper on "Systemic Conditions Resulting from Focal Infection of the Head." Discussion on this paper was opened by Dr. Thomas E. Hughes, of Richmond. The attendance at this meeting was the best we have ever had, a number of doctors from Southwest Virginia being present.

E. G. Gill, *Secretary.*

The Truth About Medicine

During April the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-official Remedies:

Abbott Laboratories:
- Anesthesin-Abbott.
- Aromatic Chlorazene Powder.
- Tablets Dichloramine-T-Abbott.

Diaprotein Company:
- Diaprotein Prepared Casein Flour.

Gilliland Laboratories:
- Streptococcus Vaccine (Gilliland).

Heyden Chemical Works:
- Acetylsalicylic Acid—Heyden.

Hollister-Wilson Laboratories:
- Capsules Corpora Lutea Desiccated—Hollister-Wilson.
- Tablets Corpus Luteum Desiccated—Hollister-Wilson.
- Pituitol Obstetrical.
- Pituitol Surgical.

Lederle Antitoxin Laboratories:
- Pollen Antigen—Lederle (Spring Type).

Lowy Laboratory, Inc.:
- Solution Arsphenamine—Lowy.

Radio Chemical Corporation:
- Radium Bromide (Radio Chemical Corp.).
- Radium Carbonate (Radio Chemical Corp.).
- Radium Chloride (Radio Chemical Corp.).
- Radium Sulphate (Radio Chemical Corp.).

E. R. Squibb & Sons:
- Bacillus Bulgaricus—Squibb.

NEW AND NONOFFICIAL REMEDIES.

Bacillus Bulgaricus—Squibb.—A culture in vials of the **Bacillus bulgaricus** type A, the **Bacillus bulgaricus** type B **(Bacillus acidophilus)** and the **Bacillus paralacticus,** each vial containing 12 Cc. The preparation is designed for internal administration and for topical application (see general article, Lactic Acid-Producing Organisms and Preparations, New and Non-official Remedies, 1920, p. 156). E. R. Squibb & Sons, New York.

Pollen Antigen—Lederle (Spring Type).—A liquid obtained by extracting equal parts by weight of dried pollens of timothy, red top, June grass, orchard grass, sweet vernal grass, meadow foxtail, meadow fescue, rye and wheat by a vehicle of 67 per cent. glycerine and 33 per cent. saturated solution of sodium chloride. Each Cc. contains 14,000 pollen units (a pollen unit is the equivalent of 0.001 Mg. of pollen). For a discussion of the actions, uses and dosage, see Pollen Extract Preparations, New and Non-official Remedies, 1920, p. 236. The product is supplied in 15 different doses, each dose consisting of 0.1 Cc. of the respective dilution. Each dose is accompanied by a vial con-

taining 9 Cc. of sterile water for diluting the dose to make it of isotonic strength. Pollen Antigen—Lederle (Spring Type) is supplied in packages containing a complete set of 15 doses, in packages containing sets of 5 doses and as a diagnostic test consisting of 0.01 Cc. of No. 15 dilution. Lederle Antitoxin Laboratories, New York (Jour. A. M. A., April 24, 1920, p. 1167).

PROPAGANDA FOR REFORM.

Some Misbranded Nostrums.—The following "patent" medicines have been the subject of prosecution by the Federal authorities: Mendenhall's No. 40 for the Blood, consisting essentially of potassium iodid, cathartic resins, ammonium acetate, licorice, glycerin, sugar, alcohol and water; Zaegel's Essence, consisting essentially of alcohol, water, sugar and plant extractives, including a laxative substance and a saponin; Zaegel's Lung Balsam, consisting essentially of alcohol, water, sugar and laxative plant material flavored with oil of peppermint; McGraw's Liquid Herbs of Youth, containing essentially Epsom salt, senna, red pepper, quassia, alcohol and water with wintergreen flavor; Jarabe de Abrozoin, composed essentially of terpin hydrate, menthol, benzoic acid, ammonium chlorid, sodium bromid, glycerin, alcohol, sugar and water; Kampfmueller's Rheumatic Remedy, consisting essentially of potassium iodid, plant extractives, alcohol and water; Sal-Sano, containing essentially sodium chlorid, sodium phosphate, sodium bicarbonate and sodium sulphate; Indian Wyanole, consisting essentially of chloroform, ammonia, menthol, glycerin, turpentine-like oils, alcohol and water; Gregory's Antiseptic Oil, consisting of kerosene oil with oil of cloves, cassia, and sassafras with a trace of camphor and pepper resins. (Jour. A. M. A., April 17, 1920, p. 1114).

Look Up Its Rating.—The Council on Pharmacy and Chemistry was created because the complexity of modern medicine makes it a physical impossibility for physicians to know the scientific status of the many proprietary remedies which are on the market. As commercial agencies, such as Bradstreet and Dun, report on the commercial probity of individuals and firms, so the Council on Pharmacy and Chemistry reports on what might be called the scientific probity of proprietary and unofficial pharmaceutical products. The commercial agency issues, at no small expense to its customers, rating books; the Council on Pharmacy and Chemistry issues, at a nominal price, "New and Non-official Remedies." The commercial agency, for a substantial fee, will furnish reports on business concerns; the Council on Pharmacy and Chemistry, will, without any expense to the profession, furnish reports on proprietary products used for the relief or cure of human ailments. (Jour. A. M. A., April 24, 1920, p. 1171).

Adulterated or Misbranded Mineral Water.—Harris Spring Water, examined by the U. S. Bureau of Chemistry, was found to contain **B. coli** in small quantities, molds and liquefying organisms. Sprudel Concentrated Spring Water was found to contain bacilli of the colon group and also added salts not obtained from the West Baden Springs. American Apollinaris Mineral Water was found not to be Apollinaris Water. Robinson Spring Water was falsely claimed to be effective as a remedy for Bright's disease, diabetes, dropsy, cystitis, gout, rheumatism, indigestion, and kidney and bladder troubles. Ferro-Manganese Regent Water was falsely represented as a remedy for alcolholism, chronic rheumatism, dyspepsia, diabetes, Bright's disease, albuminuria, dropsy, sciatica and insomnia, and was not a natural spring water. (Jour. A. M. A., April 24, 1920, p. 1182).

Alkalithia.—Keasbey and Mattison Company's Effervescent Alkalithia was introduced at a time when it was believed that the administration of lithium salts served to remove uric acid from the system. The A. M. A. Chemical Laboratory reported that Alkalithia is an effervescent mixture which contains alkaline carbonates and bicarbonates together with caffein, free tartaric acid and free citric acid and that, as taken, it represents caffein in solution of alkali tartrate, citrate and bicarbonate containing free carbonic acid. The Council on Pharmacy and Chemistry declared Alkalithia inadmissible to New and Non-official Remedies because the claims made on the label and in the circular accompanying the trade package led the public, to its detriment, to depend on this preparation and because the therapeutic claims are unwarranted. (Reports Council Pharm. & Chem., 1919, p. 65).

Arhovin Omitted from N. N. R.—Arhovin is a solution of diphenylamin, thymol benzoate and ethyl benzoate marketed by Schering and Glatz. Inc. The Council on Pharmacy and Chemistry reports that it was omitted from New and Non-official Remedies because the therapeutic claims made for the preparation were unwarranted. (Reports Council Pharm. & Chem., 1919, p. 66).

Chloron, Chlorax and Number "3."—The Council on Pharmacy and Chemistry has examined Chloron, Chlorax and Number "3," manufactured by the Chlorine Products Company, Inc., New York. The products have been declared inadmissible to New and Non-official Remedies. The report of the Council—which in accordance with the usual procedure was submitted to the Chlorine Products Company before its publication was authorized—sums up the Council's findings thus: (1) All are of unreliable composition. (2) The therapeutic claims made for the preparations are not substantiated by evidence and are unwarranted and misleading. Chloron is inferior as an antiseptic to the well-known surgical solution of chlorinated soda because of its low chlorin content and uncontrolled reaction. There is no warrant for the claim that Chlorax is useful in the treatment of "Kidney Conditions," "Diabetes," "Acute Infections," "Blood Dicrasias," "Lithemias and Rheumatism," and "Nervous Conditions," nor is there warrant for the claim that "Number '3'" is a "blood purifier" or a "syphilis remedy." (3) The names of these pharmaceutical mixtures are not descriptive of their composition. (4) All three preparations are irrational. No evidence has been furnished that the lithium salt is of value in the mixtures. It is not rational to combine an active chlorin preparation and a mercury salt in one mixture, nor is there evidence that the addition of opium to the preparations proposed for internal use is of value or rational. Experimentation with Number "3" as a "syphilis remedy" is to be severely condemned in that those on whom it is used will, in the meantime, be deprived of efficient medication. (Reports Council Pharm. & Chem., 1919, p. 70).

Elarsen Omitted from N. N. R.—Elarsen, now sold by the Winthrop Chemical Co., Inc., was formerly sold in the United States by the Bayer Co., Inc. It was admitted to New and Non-official Remedies in 1914. The Council on Pharmacy and Chemistry now reports that Elarsen has been omitted from New and Non-official Remedies because it is sold

under unproved and, consequently, unwarranted claims and because, in the light of investigation, it is an unscientific and relatively useless article. The Council also reports that Elarsen has not been shown to have advantages over Fowler's solution but that, in some respects at least, it is inferior. (Reports Council Pharm. & Chem., 1919, p. 75).

Formicin Omitted from N. N. R.—Formicin, manufactured by Kalle and Co., A. G. Biebrich a/Rh, Germany (Kalle Color and Chemical Co., New York, U. S. agents) was admitted to New and Non-official Remedies in 1912. The Council on Pharmacy and Chemistry reports that while the claims recently made for Formicin were essentially those made when the product was first accepted, these claims were questioned because further experience had not established the usefulness of the product. As the Kalle Color and Chemical Co. presented no evidence to establish its therapeutic efficiency, the Council directed the omission of Formicin from N. N. R. (Reports Council Pharm. & Chem., 1919, p. 76).

Choice of a Medical School

Essentials of an Acceptable Medical College.

(Continued from May Issue.)

SUPERVISION, EQUIPMENT, TEACHERS.

6. There should be careful and intelligent supervision of the entire school by the dean or other executive officer who holds, and has sufficient authority to carry out fair ideals of medical education as determined by the present-day knowledge of medicine.

7. There should be a good system of records showing conveniently and in detail the credentials, attendance, grades and accounts of the students, by means of which an exact knowledge can be obtained regarding each student's work. Records should also be kept, showing readily the attendance of patients at the teaching hospitals and dispensaries; the maternity cases attended by students, and the postmortem cases used in teaching.

8. The college curriculum should be fully graded and should cover four sessions of at least thirty-two weeks each, exclusive of time required for matriculation and holidays, and at least thirty hours per week of actual work. The courses offered in the various subjects should be set forth by departments (anatomy, physiology, etc.) in the annual announcement, showing for each course its number, subject content, character (lecture, recitation, laboratory or clinic), length of time, when, where, and by whom given, and the amount of credit allowed. The courses for each class should also be clearly set forth in a printed class schedule, for the guidance of the students.

(*a*) The college should give two years of work consisting largely of laboratory work in well equipped laboratories of anatomy, histology, embryology, physiology, pysiologic chemistry, bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis. Present-day medical knowledge makes it essential that these subjects be in charge of full-time, well-trained teachers.

(*b*) Two years of clinical work, largely in hospitals and dispensaries, with courses in medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence. With the higher entrance requirements, time is now available in the latter part of the second year for beginning courses in physical diagnosis and the principles of surgery.

(*c*) As soon as conditions warrant, relations should be etablished with a number of approved hospitals so that a fifth undergraduate year may be required to be spent by the student as an intern under the continued supervision of the medical school.

FACULTY.

9. (*a*) The college should provide at least *eight expert thoroughly trained professors in the laboratory branches*, salaried so that they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects.[8] For colleges having *sixty students or less* in each class there should be at least one full-time salaried assistant each in the departments of (1) anatomy, (2) physiology, (3) pathology and bacteriology, and (4) physiologic chemistry and pharmacology. There should be also one additional assistant provided in each of these departments for *each additional thirty students enrolled*. This represents a low average

8. These professors should have a definite responsibility in the conduct of the college, and their first and chief interest should be the training of medical students. It is suggested that four of these professors be placed at the head of the departments of (a) anatomy, (b) physiology and physiologic chemistry, (c) pathology and bacteriology, and (d) pharmacology and therapeutics. The other four may be assigned, one each, to (e) histology and embryology, under the department of anatomy, and to the department of (f) pathology and bacteriology, and (g) physiology and pharmacology, and to the departments of (h) either internal medicine or surgery.

of the full-time assistants already employed by the acceptable medical colleges.

(*b*) The faculty should be made up of graduates of institutions recognized as medical colleges and who have had a training in all departments of medicine. Nonmedical men should be selected as teachers in medical schools only under exceptional circumstances and only when medical men of equal special capacity are not available. The faculty should be organized, each department having its head professor, its associate professor, assistant professor, instructor, etc., each having his particular subjects for the teaching of which he is responsible to the head of the department.

CLINICAL FACILITIES AND INSTRUCTION.

10. (*a*) The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff. This hospital should be in close proximity to the college and have a daily average (for senior classes of 100 students *or less*) of not less than 200 patients who can be utilized for clinical teaching, these patints to be of such character as to permit the students to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties. In the use of this material *bedside and ward clinics* should be developed for sections of from five to ten students, and for the seniors, a certain number of patients in medicine, surgery and the specialties should be assigned to each student under a well supervised clinical clerk system. The treatment and care of these patients should be particularly observed and recorded by the student under the strict supervision of the intern, or the attending staff of the hospital.

(*b*) The college should also have ample hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

(*c*) The college should own or control a dispensary, or out-patient department, the attendance to be a daily average of 100 patients (visits) (for senior classes of 100 students *or less*), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used. The attending staff should be made up of good teachers, should be well organized and be prompt and regular in attendance.

(*d*) At least six maternity cases should be provided for each senior student, who should have actual charge of these cases under the supervision of the attending physician. Careful records of each case should be handed in by the student.

(*e*) Facilities should be provided for at least thirty necropsies (for senior classes of 100 students *or less*) during each college session which are attended and participated in by senior students. These, as a rule, should be in the teaching hospital controlled by the medical school and performed by the professor of pathology. The so-called clinical-pathological conferences should be more widely developed in connection with the postmortems.

OTHER TEACHING FACILITIES AND FINANCES.

11. The college should have a working medical library, to include the more modern text and reference books with the *Index Medicus*, the Surgeon-General's Index and other serviceable indexes. The library should receive regularly thirty or more leading medical periodicals, the current numbers of which should be in racks or on tables easily accessible to the students. At the end of each year these periodicals should be bound and added to the files of bound periodicals. The library room should be properly lighted and heated, and open during all or the greater part of the day; it should be equipped with suitable card indexes as well as with tables and chairs, and have a competent librarian in charge.

12. There should be a working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes. It is suggested that so far as possible with each pathologic specimen coming from postmortems there also be kept the record of the postmortem, the clinical history of the patient on whom the necropsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen. The museum furnishes an excellent means of correlating the work of the department of pathology with that of the clinical departments.

13. There should be sufficient dissecting material to enable each student individually to dissect at least the lateral half of the human cadaver, to provide cross-sections and other demonstration material and to allow of

a thorough course for each senior in operative surgery on the cadaver.

14. For the modern experimental laboratory work in phyisology, pharmacology and bacteriology as well as for medical research, a supply of animals—frogs, turtles, rabbits and guinea-pigs, if not also cats and dogs—is essential. Proper provision, also, is necessary for the housing and care of such animals. In any use made of animals every precaution should be taken to prevent needless suffering, and work by students should be carefully supervised.

15. Each college should have a supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a roentgen-ray and other apparatus now so generally used in medical teaching.

16. The college should show evidences of thorough organization and of reasonably modern methods in all departments, and evidences that the equipment and facilities are *being intelligently used* in the training of medical students.

17. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions, courses offered and graduation should be clearly set forth, together with complete classified lists of its matriculants and latest graduating class in regular catalogues or announcements.

18. Statistics show[9] that modern medicine cannot be acceptably taught by a medical school depending solely on the income from students' fees. No medical school should expect to secure admission to, or be retained in Class A, therefore, which does not have an annual income of at least $25,000 in addition to the amount obtained from students' fees.

Analyses, Selections, Etc.

The Value of Military Surgery In Civilian Practice—Results of Anociation in Reducing Mortality.

In addressing the 73rd Annual Meeting of the Ohio State Medical Association, George W. Crile, of Cleveland, emphasized the value of Anociation in reducing operative mortality.

"The Interallied Surgical Conference," said Dr. Crile, "adopted as one of its conclusions that in the treatment of wounded soldiers the anaesthetic of choice is nitrous oxide-oxygen combined with local anaesthesia. Among the evidence offered in support of this tenet, Surgeon-General Sir Anthony Bowlby presented the work of one of the most brilliant British military surgeons, Captain Douglas C. Taylor, and the work of the Chief of the Anaesthetic Service of the British Army, Captain Gregory Marshall. The experience of Captain Taylor I am privileged to quote. He has summed it up as follows: 'Until the summer of 1917 my colleague, Captain Marshall, invariably gave ether for my laparotomies for gun-shot wounds of the abdomen. No series of 100 consecutive cases showed a recovery rate of much over 50 per cent.

"'During the summer and autumn of 1917, I did 101 laparotomies for abdominal wounds, and nearly half of them were given nitrous oxide and oxygen combined with infiltration of the abdominal wall with eucain and novocain. The more serious cases, i. e., those with rapid pulse and low pressure were nearly all done by this method.

"'Of this series, 27 died at the Casualty Clearing Station, and 74 were evacuated to the Base; of the latter there have been only two deaths, both from secondary hemorrhage—one from the kidney and the other from the rectum and buttock.'"

That is, by the employment of anociation, Captain Taylor's mortality rate was reduced from approximately 50 per cent. to 29 per cent.

Captain Marshall has demonstrated that patients may apparently do well during ether anaesthesia but do badly afterward, while they do well both during and after nitrous oxide-oxygen anaesthesia.

The experience on a large scale of the resuscitation teams from the Lakeside Unit, which served continuously throughout Field Marshal Haig's great offensives in Flanders in 1917, during which there were over 800,000 casualties, showed that in abdominal operations somewhat better results were obtained if, before the beginning of the operation, sufficient blood were transfused to permit a safe performance of the operaton; and again, at the com-

9. See "Medical College Finances," The Journal A. M. A., April 8, 1916, page 1115.

pletion of the operation, an ample amount of blood up to 750 c. c. were given. Furthermore, if a let-down appeared later, the transfusion might be repeated. Meanwhile, the advantages of comfort, rest, warmth, morphia and fluids were added.

The advantages of the nerve-blocking are further emphasized by Colonel Cabot's series of 180 amputations of the thigh, one-half under ether, and one-half under spinal anaesthesia with a reduction of mortality by the use of spinal anaesthesia of 50 per cent.; while Captain Taylor by the use of nitrous oxide-oxygen reduced his mortality rate for thigh amputation more than 200 per cent. (Ohio State Med. Jour., Sept., 1919.)

Correspondence

Health Service of American Red Cross.

WASHINGTON, D. C., *May* 18, 1920.

TO THE EDITOR:—

I desire through you to inform the Medical Society of Virginia that a Department of Health Service has been organized in the Potomac Division of the American Red Cross, which includes Maryland, Virginia, West Virginia, and the District of Columbia. This action is in accordance with the policy of the American Red Cross to use its organization so far as it properly can to assist in the prevention of disease.

I have talked with Dr. Ennion G. Williams, the State health officer, regarding the participation in local health work by the Red Cross chapters, and am glad to say that Dr. Williams welcomes co-operation from the Red Cross. I wish to assure the Medical Society of Virginia that the Red Cross desires to work with it as closely and harmoniously as possible, and bespeaks the co-operation of local medical societies and individual physicians for the Red Cross chapters.

PAUL B. JOHNSON, M. D., *Director.*
Dept. of Health Service, Potomac Division, A. R. C.

Open Letter To Virginia Physicians.

May 15, 1920.

DEAR DOCTOR:

One of the greatest handicaps which the Laboratory of the State Board of Health experiences in making prompt reports to physicians on specimens received for examination is the frequent illegibility of names and addresses. We endeavor to keep a complete file of all physicians in the State of Virginia, which file is arranged alphabetically, both by post-offices and by the physicians' names. By means of these files, when either the name or the place is legible, we are usually able to complete the address and send the report. We find, however, that in spite of these efforts, we are unable to determine the origin of some specimens.

These files are of value to us in direct proportion to the extent to which they are accurate and complete. We find it very difficult to keep them correct and up-to-date, especially in the names of new physicians locating in the State, and others who change their address.

It would greatly aid us if physicians would send us notices of changes in address, or of new physicians coming into the State.

E. C. L. MILLER,
Bacteriological Laboratory, State Board of Health.

Book Announcements

A Manual of Obstetrics. By JOHN COOKE HIRST, M. D., Associate in Gynecology, University of Pennsylvania; Obstetrician and Gynecologist to the Philadelphia General Hospital. 12mo. of 516 pages with 216 illustrations. Philadelphia and London. W. B. Saunders Company, 1919. Cloth $3.00 net.

In this manual the author gives in a concise and complete manner the subject of obstetrics. It will be valuable to students as a time-saver in reviewing for examinations, yet full enough to enable a hurried consultation by the busy physician.

The book is neat in appearance, well written from the author's long experience as a teacher, and is well illustrated.

V. H.

Arteriosclerosis and Hypertension. With Chapters on Blood Pressure. By LOUIS M. WARFIELD, M. D., (Johns Hopkins), F. A. C. P., formerly Professor of Clinical Medicine, Marquette University Medical School; Chief Physician to Milwaukee County Hospital. Third Edition. St. Louis. C. V. Mosby Company, 1920. 8vo. 265 pages. Illustrated. Cloth, $4.00

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ALEX. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
BEVERLEY R. TUCKER, M. D., Richmond, Va.
PAUL W. HOWLE, M. D., Richmond, Va.
EDWIN L. KENDIG, M. D., Victoria, Va.
ALFRED L. GRAY, M. D., Richmond, Va.

EDITOR
ALEX. G. BROWN, Jr., M. D.
G. H. WINFREY, Business Manager.

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Editorial

Medical Education in Virginia.

The appointment of the Commission on Medical Education, by the Governor of Virginia, as authorized by the recent Legislature, to make a survey of the medical schools and to study the problem of medical education in Virginia, very properly, serves as an opportunity to direct the attention of the doctors of this State to this subject. It is really one of the most vital and important public matters with which the medical profession of Virginia has had any connection in a generation. For no class of citizens of the Commonwealth is more intimately connected with this public problem than the doctors; not only because of the training derived from medical schools by themselves, and not only because of the advantages to themselves of having in operation within the borders of their own State the most modern, best equipped and efficiently conducted medical school, from which may be gotten professional and medical reflex advantages of the highest order, but because of the great duty the medical profession of this State owes to the people in it of this and succeeding generations. It is well known by every well informed physician, and layman as well, that medical education in this country is now undergoing an epochal change.

This epoch in medical education means a change from the old order to the new. The old methods and establishments have served their day, and to them we owe much of the present-day knowledge. But the light of this knowledge shows the glaring weaknesses and insufficiencies of the old machines for the work of the future. In no phase of the social order is this more true than in medical education. Some States and communities have adjusted themselves and have set themselves right for the great work of medical education. But here in Virginia the situation is not good enough. This State is entitled to the best and most adequate medical establishment, with none superior the country over. The physicians of Virginia are in position to give expert and telling assistance in this readjustment to the needs of modern medical education. Let them, as members of the State Medical Society, an influential body of citizens, organized for the avowed purpose of promoting the public good in medical matters, inform themselves upon this vitally important work and, further, let them, if occasion requires, exert a proper and effective influence to see carried forward the establishment of an adequate and unexcelled State institution or institutions for the training and education of medical men, not only for this day, but for the generations to come.

The Preparation and the Need.

Owing to the fact that medical men of America realized the importance of training academically every student in medicine, the medical colleges of the country, very properly, within the last fifteen years, placed entrance requirements higher. In Class A medical schools,* two years' college course is required; in some, a degree is required before medicine is begun. This not only includes two years of college work; but, in quantity and quality, this two-year course must be fully equal to the first two years of the course leading to the degree of Bachelor of Science in reputable and approved colleges of arts and sciences. Seventy-eight of the eighty-five medical colleges now existing are requiring this or a higher standard.

It is believed that the requirement of two years of work in a college of arts and sciences is one of the most advantageous points in American medical education, for, in the first place, it brings every student into the atmosphere of the liberal arts college for at least two years before he goes on into medicine. This gives him the benefit of the contact with

*See "Choice of a Medical School," published by A. M. A. and copied in this journal.

students in other departments of education. As may be readily seen, the student lives in the college atmosphere, with its various societies, clubs, athletics, etc.,—experiences which will be of value to him throughout his life.

Secondly, this arrangement enables him to postpone the final selection of his life's work until such time as he is best able to decide that most important matter. On completion of his two-year premedical course he can, if he desires, go on and complete his work for the B. S. degree before entering on medicine, or, if he prefers, he may choose some other calling. His two-year course in the premedical subjects is acceptable also as preliminary education leading to other callings, especially those along scientific lines. If he desires the degree of arts, the chances are he would have to take a few other courses, particularly the classics. Even after taking the first two years of his medical courses, he still has the opportunity to swing to such a subject as dentistry, if he prefers, or he can enter the combined course and secure his B. S. degree with the first two years in medicine. He can, even then, transfer to other science departments, if he cares to do so.

As you see, this arrangement not only safeguards the individual, since on entering medicine he is enabled to know positively that it is his life work, but on the other hand, the medical profession is safeguarded, since every individual entering it will come with the qualifications of culture secured in the liberal arts college.

This advance in requirements has caused many of the poorer schools of the country to close; and in turn has lessened the number of men applying for study of medicine. And so, without the effects of the war, there began to be felt the effect of a reduction in the number of physicians. But very fortunately, the efficiency of the average medical graduate has been greatly raised. In this important fact, the public may find great comfort, for no longer need it feel, that the young doctor, recently graduated, is wholly wanting in clinical experience in disease, and must derive his experience and knowledge from his observation of, and practice on, his first patients.

The war also has had its effect. The war for two years practically changed the whole medical map of America. Thousands of physicians left their posts and patriotically served the cause of their country. Many of these men have never returned to their old places. Some, having returned to practice, have located in other places; some have died of diseases; some have changed their methods of service, many becoming specialists.

As a result of these conditions, our State is confronted with a serious shortage of physicians. This fact was made impressive during the influenza epidemic.

There are less than seventy-five doctors graduated each year from the two State medical institutions, the Medical College of Virginia and the Medical Department of the University of Virginia. Of this number, some of these graduates are not from Virginia and go into other States to practice.

A Call to the College-Men.

Medicine invites you work in a field where much is known of the cause and course of diseases; to a field of work where, for instance, the cause of ubiquitous typhoid fever is known. We know the typhoid bacillus; we know now about diphtheria—how to diagnose it early and and how to treat it, reducing its dreadful mortality of twenty years ago to almost nothing of today. We know, now, much of tuberculosis, that "white captain of the men of death," its germ, its insidious methods of implantation in the human body (particularly the lungs); its long, slow, but progressive growth in this most delicate organ. We are conquering tuberculosis by early diagnosis, by knowledge of its physical signs, by microscopic study of the lung's secretion, by the X-ray of the lungs, by the skin tuberculin test. The management and treatment of this dreaded disease is now well in hand.

So, leprosy, smallpox, yellow fever, cholera and the plague really are disease-terms rapidly becoming obsolete in medical terminology. Medical science has all but wiped them off the face of the earth.

Malaria, too, offers little worry, because the origin and method of its propagation is well known, and the eradication of it is being successfully accomplished by the application of the rules of prevention. This is being done by eradication of its host—the malarial mosquito.

So, medicine has done much for you already in the battle against these infections of man. Of course, much remains to be done, but how fortunate we are in the great wealth of knowledge revealed by the microscope and by the work of the bacteriologist! There are yet many problems to be solved in this field, but the ground has been broken. More workers and more work will bring solution in the bacterial origin and treatment, particularly in such diseases as pneumonia and influenza—so recently the horror of the world, when over six million human beings died of lung complications.

Also, medicine offers you many solved problems in the discovery of physiological-pathology of the human body. Its new-found laws concerned in the disease of pellagra, diabetes, gout, scurvy, beriberi and Bright's disease, and new facts brought to light in recent years about the origin of systemic diseases and so-called focal infections, offer you fruitful opportunity to explore in a realm very rich in possibilities for the prolongation of human life. The great and interesting facts being disclosed in the study of diet and the proper feeding of infant, youth and mature life are indeed wonderful offerings that medicine makes to you. In this field may there not be found the cause of man's failure to successfully combat the propagation of infectious diseases in the human body? With the proper feeding of the human animal may we not find a wealth of inherent strength and power in the body for antagonizing the progress of bacterial disease? Immunity to certain diseases at certain stages of life seem to point in this direction. Here, in this field, medicine offers you some new facts about the growth and care and feeding of infancy and youth, so that the crippled and deformed in childhood, the anemic and emaciated, the obese and misshapened in adult life, may not be so large a proportion of our population.

Besides, in the great domain of surgery, the vocation of medicine offers you likewise many wonderful facts. Even in this department much remains to be done. This field is rich, however, in opportunities. Only a day or so ago we witnessed a feat of the art of surgery which illustrates, briefly, one of many triumphs of this field. A patient, an aged lady, 77 years, having just recovered from broncho-pneumonia, was seized with an attack of acute appendicitis. She had the pain, she showed the classical signs, her blood indicated "serious inflammatory disease", all making the conclusion imperative that an operation for the removal of the acutely diseased appendix was immediately needed in order to save her life. Of this opinion she and her family were immediately informed. She was taken in an ambulance to the hospital; taken forthwith to the operating room; the surgeons, after following the usual technique of preparation, began the operation. Without a general anaesthetic, with only a local anesthesia, with the patient conscious and quietly and composedly talking, the abdomen was opened and the acute gangrenos appendix was removed. The patient in two weeks was well and able to go home. This illustrates the wonder and the greatness of an art that invites you to its ranks.

The field is in need of workers—but only well educated and academically trained workers. The vocation is rich in great scientific interest and knowledge, and the opportunity for the medical man of the immediate future is great. To it we invite you.

While we invite you to medicine as a vocation, one must not fail to say that it has its hardships and its difficulties. There are many perplexities and many reverses to be dealt with. But, if you hold fast to the profession of the faith, learn to adhere, without wavering, to the high ideals of the ethical obligations of the profession, no matter how grave the difficulties, how serious the responsibilities, or how onerous the work, you shall feel a deep and abiding satisfaction in the pursuit of it as a life-work.

Indeed, medicine is of all the arts the most noble, says Hippocrates, and "whoever is to acquire a competent knowledge of medicine, ought to be possessed of the following advantages: a natural disposition; instruction; a favorable position for study, and love of labor." Having brought these requisites to the study of medicine and having acquired a true knowledge of it, you "shall be esteemed a physician not only in name, but in reality."

Improvement In Hospital Service.

Every State medical association in the United States has its part to play in the

present universal movement for the betterment of hospital service. Every association now has its own committee which is studying the hospital situation in its State in co-operation with the Council on Medical Education of the American Medical Association. The Council has obtained, through reports, correspondence, and other methods, data relative to all hospitals in the country, and each State committee has been supplied with the data relating to the institutions in its State. Through their closer familiarity with the hospitals, or by inspection, the State committee is in excellent position to verify these data and to make a reliable report to their State association and to the Council.

For convenience and in order to secure uniformity of reports from the forty-eight committees regarding the relative efficiency of hospitals, blanks furnished by the Council call for a rating of all hospitals in classes A, B and C, grouped also according to the special class of patients cared for. This rating is not for publication, but will aid the Council in the preparation of a list of hospitals which are considered worthy of approval. These lists are subject to frequent revision, so that names of other hospitals can be included as soon as sufficient improvements are made to warrant their being approved. State committees are urged to promptly report to the Council any instances where such improvements have been made.

The purpose of the work is to aid the hospitals in providing for their patients the best possible service, and in no way to injure those which are honestly endeavoring to provide such service. Toward this end, every possible assistance will be given to individual hospitals by the Council or by the local State committee in establishing such changes as will make them worthy of approval.

Forty-two State committees have reported progress in connection with the survey, and thirty-four have turned in reports regarding hospitals inspected and graded, which have more than half the entire bed capacity of all general hospitals in the country. Meanwhile, this work of the Council is not conflicting with, or duplicating the splendid work being done by the American College of Surgeons, the Catholic Hospital Association, the American Hospital Association, or other agencies. In fact, the work of each agency is evidently complementing that of the others.

At the New Orleans meeting recently, the House of Delegates of the American Medical Association registered an intense interest in the improvement of hospital service, and authorized the trustees to generously provide for that work. This work has been so intimately related to that of the Council on Medical Education that the name of this Council was changed to the "Council of Medical Education and Hospitals."

In brief, further enlargement of hospital work by the American Medical Association is assured, and in this work each State is destined to have an important part. Toward this end each association is urged to make its hospital committee permanent, and to retain on it those who will not only be active, but who also can do the work in the most efficient and unbiased manner. Hospitals, at present, form the closest link between the medical profession and the public, and the medical profession should do all it can to aid the hospitals to provide the very best service possible.

Digestibility Of Cocoa Butter.

Gardner and Fox (From the Physiological Laboratory of London) Biochemical Journal, Vol. VIII, No. 4, in discussing an investigation on the digestibility of cocoa butter, reach the following general conclusions:

I. Cocoa butter is rather less digestible than butter, but experiments recorded show satisfactory utilization.

II. Beyond the slight laxative action observed in the case of some subject who consumed large quantities of the cocoa butter, no undesirable physiological effects were noticed.

III. Our experiments show no indication whatever that cocoa butter is a "slow poison," and there can be no doubt but that this substance could be used to supplement the fat need of the population with safety. This conclusion is in agreement with general experience, since large quantities of this fat must have been consumed with impunity in the various chocolate preparations on the market which may contain as much as 20% of fat.

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News Notes

Medical College of Virginia Finals.

The graduating exercises for the class of '20, Medical College of Virginia, ending its eighty-first year, were commenced with the baccalaureate sermon by Rev. Fred R. Chenault, of Broad Street Methodist Church, on Sunday evening, May 30. On the following day at noon, the Board of Visitors of the College met. No great changes were made in the personnel of the faculty, but some rearrangements will be necessary. At this meeting, the honorary degree of medicine was conferred upon Rear Admiral Cary T. Grayson, who attended this college for two years, though he later graduated from another institution.

"Alumni night" was held on Monday, and on this occasion Dr. Russell Cecil, of New York City, an alumnus of the college and formerly of this city, read an interesting paper on "Pneumonia and Influenza," in which he described some experimental work in which he has been engaged. This was followed by a smoker, "sing," wrestling match and a buffet supper. The business meeting of the Alumni Association was held on the morning of June 1, and later a luncheon was tendered the alumni at College Hall. Officers of the Alumni Association elected at this meeting, are as follows: President, Dr. Fletcher J. Wright, Petersburg; vice-presidents, Dr. B. L. Taliaferro, Catawba Sanatorium; Dr. J. Fulmer Bright, Chas. F. Walker, and Dr. R. R. Byrnes, all of Richmond; secretary, Dr. Roshier W. Miller; assistant secretary, Dr. Greer Baughman; treasurer, Dr. F. H. Beadles; registrar, Dr. Clyde F. Ross, all of the last named of Richmond.

Clinics and demonstrations were given on Tuesday afternoon at Memorial Hospital by Drs. J. Garnett Nelson, Stuart McGuire, Fred Hodges, Wm. Porter, W. T. Graham, McGuire Newton, Douglas Vander Hoof, and R. Finley Gayle.

That night at the City Auditorium, graduates of the college in the departments of medicine, dentistry and pharmacy, and graduates in nursing from Memorial Hospital, received their diplomas. There were twenty-one graduates in the school of medicine, four in dentistry, eighteen in pharmacy, and sixteen in nursing. Mr. Wyndham Meredith, of this city, delivered the address of the evening. Dr. Stuart McGuire, president of the College, presided over the exercises and conferred the degrees. He stated that Major Dooley had given an additional $11,000 to the Dooley Hospital, making a total of $51,000. This last sum is for the purpose of opening at once the hospital for children, so as to relieve the congestion at Memorial Hospital and to offer better facilities for the care and treatment of orthopedic cases.

The unusual events of this commencement were the presentation by Major William A. Stack, of the distinguished service cross to C. C. Cochran, of Huntersville, N. C., a student at the College, for his heroic services in the world war, and the graduation of the first woman doctor from this medical school. This latter was Dr. Innis Steinmetz, a Canadian by birth, though she now makes Richmond her home.

Hospital appointments are as follows:

Stuart Circle Hospital, Richmond—Dr. W. T. Green, Jr., Portsmouth, and Dr. John W. Shawver, Burkes Garden.

Gouveneur Hospital, New York City—Dr. Horace O. Bell, Wilmington, Va., and Dr. Frank M. Leech, Lexington, Va.

Stetson Hospital, Philadelphia—Dr. Russell S. Wingfield, Richmond.

Philadelphia General Hospital, Philadelphia—Dr. Jas. F. Edmonds, Accomac, Va.

Miami Valley Hospital, Dayton, O.—Dr. Harry R. Huston, Hmmbert, Pa., and Dr. T. C. Sheridan, Lorain, O.

St. Vincent's Hospital, Norfolk—Dr. Ward C. Curtis, Hartwood, Va.

Shenandoah Hospital, Roanoke—Dr. Lawrence H. Hoover, White House, Va.

Elizabeth Buxton Hospital, Newport News, Va.—Dr. A. D. Ownbey, Grundy, Va.

Metropolitan Hospital, New York City—Dr. Innis Steinmetz, Richmond.

Home for Incurables, Richmond—S. P. Hileman (undergraduate).

St. Elizabeths Hospital, Richmond—O. O. Ashworth (undergraduate).

Soldiers' Home Hospital, Richmond—C. W. Putney (undergraduate).

Memorial Hospital, Richmond—To be supplied.

Others receiving their diplomas in medi-

cine are: Drs. Wallace B. Cannon, Blackstone; Gilmer G. Holland, Holland; Howard W. Kline, Front Royal; Jas. G. Lyerly, Granite Quarry, N. C.; Howard L. Mitchell, Callands; Zack P. Mitchell, Windsor, N. C.; S. H. Nixon, Christiansburg; A. J. Russo, Portsmouth; William C. West, Vesta; Carlton Moorman, Moneta; Claud E. Stump, Pocahontas.

Federal Aid For Protection of Maternity and Infancy.

A bill for this purpose was introduced in both branches of Congress the latter part of 1919, and was referred by both Senate and House to sub-committees. The plan is to have the money appropriated by Congress apportioned among the States according to population, provided that each State appropriate a like sum. An additional sum is sought, to be divided equally among the States without guarantee of like sum. The act is to be administered by a Federal Board of Maternal and Infant Hygiene, and plans for State work must be submitted to and approved by this Board. It is further designated that at least half of the members of the committees must be women.

The necessity of protecting the lives of mothers and infants is apparent when it is noted that in the United States every year, some 17,000 mothers die in childbirth, and nearly a quarter of a million babies die under one year of age. Most of these deaths are preventable. Among fifteen important foreign countries, fourteen show a more favorable maternal death rate than the United States and seven a more favorable infant mortality rate. These statisics should be improved and every effort made to reduce this heavy mortality.

According to statistics compiled by our State Registrar of Vital Statistics, nearly three times as many women are dying in Virginia from the perils of motherhood as would succumb if all of them had the benefit of the care of painstaking physicians. The maternal death rate is second only to tuberculosis in its danger to women between the ages of 15 and 45 years.

New Form Of Influenza In Vienna.

Three hundred cases of a new form of influenza, thought by the Viennese and American Red Cross physicians who are treating them to be allied to encephalitis lethargica, are being treated in the hospitals of Vienna. The disease attacks the brain, inducing violent and painful muscular convulsions, similar to those observed in cases of St. Vitus dance. Pending the coining of an exact medical term, it is temporarily known as influenza of the brain. Of the 71 cases of brain influenza treated in the past month with the aid of the American Red Cross, 40 have already resulted in death.

The disease ordinarily begins with headache and sleeplessness, followed by increasingly violent convulsions of the stomach muscles not unlike those produced by acute appendicitis. From the stomach the convulsions pass to the limbs, face and extremities. In some instances the muscles of the eyes are paralyzed, forcing the eyelids open and inducing an illusory appearance of insomnia even in patients lying in the profoundest stupor.

Fever does not necessarily accompany the malady in the early stages, but later it appears and the patient passes into violent delirium, accompanied by acoustic and optical hallucinations. In the worst cases death comes in a few days. Persons between the ages of 18 and 35 are most often attacked. Prospective mothers appear particularly vulnerable to the disease. No successful treatment for influenza of the brain has yet been discovered. Medical science is powerless to combat the malady, which is spreading to an alarming extent throughout Austria.

Norfolk Doctors Form Medical Officers' Club.

At a dinner held at Hampton Roads Yacht Club, Willoughby Beach, the latter part of May, the Medical Officers' Club, of Norfolk, Va., was formed. This is composed of physicians who held commissions in the army and navy during the recent war. Lieut. Col. Junius F. Lynch was elected president and Capt. James S. Stringfellow, secretary.

This meeting was attended by approximately fifty physicians of Norfolk and vicinity who served as medical officers of the military and naval forces during the war. It is announced that membership in the Club would be open to all physicians who held commissioned rank at that time.

The following is a list of members of the Medical Officers' Club, of Norfolk:

Lt. Col. Junius F. Lynch	Capt. A. D. Morgan
Lt. Col. Geo. A. Renn	Capt. J. E. Diehl
Lt. Col. Lomax Gwathmey	Capt. J. W. Hunter
	Lt. A. V. Crosby

Lt. J. T. Rogers
Lt. E. R. Altizer
Maj. John Beattie
Maj. Israel Brown
Capt. F. H. Hancock
Maj. Burnley Lankford
Lt. F. F. Nolan
Lt. J. B. Gilmore
Capt. M. S. Fitchett
Capt. C. Willcox
Capt. George Schenck
Capt. S. R. Donohue
Capt. M. W. Healy
Lt. J. B. Foster
Lt. S. G. Gill
Lt. C. H. Childress
Capt. C. H. Lupton
Capt. T. V. Williamson
Capt. S. P. Oast
Lt. J. A. Hart
Maj. R. S. Spilman
Capt. H. C. Grant
Lt. J. W. Anderson
Lt. Bentley Byrd
Lt. Jos. S. Hume
Maj. W. E. Driver
Capt. Claude Kellam
Capt. D. P. West
Capt. H. R. Drewry
Capt. S. A. Riddick
Capt. J. W. White
Maj. B. R. Kennon
Capt. W. B. Martin
Lt. K. W. Howard
Capt. M. N. King
Lt. W. A. Simpson
Lt. T. B. Woods
Lt. S. B. Whitlock
Capt. F. H. Rinker
Lt. C. W. Eley
Lt. T. M. Vorbrinck
Lt. B. E. Harrell
Lt. R. H. Dubose
Lt. S. D. Williams
Lt. S. P. Devine
Capt. Harry Wall
Lt. B. A. Doggett
Lt. J. A. Strickland
Lt. N. F. Rodman
Capt. H. R. Seelinger
Maj. R. Lloyd Williams
Capt. Jas. L. Stringfellow

The Medical Society of the State of North Carolina,

At its annual meeting recently, held under the presidency of Dr. Carl V. Reynolds, of Asheville, selected Pinehurst as the 1921 place of meeting, and elected the following officers: President, Dr. Thos. E. Anderson, Statesville; vice-presidents, Drs. Chas. S. Lawrence, Winston-Salem; Wm. H. Ward, Plymouth, and John M. Manning, Durham; secretary-treasurer, Dr. Benj. K. Hays (re-elected), Oxford. Dr. L. B. McBrayer, Sanatorium, was made acting secretary-treasurer during the absence of Dr. Hays in Denver. At this meeting, also, the following were nominated members of the N. C. State Board of Medical Examiners: Drs. Lester A. Crowell, Lincolnton; Lucius M. Glenn, Gastonia; John G. Murphy, Wilmington; Clarence A. Shore, Raleigh; Wm. M. Jones, Greensboro; William P. Holt, Duke, and K. P. B. Bonner, Morehead City.

N. C. Health Association.

Dr. R. L. Carlton, Winston-Salem, was elected president of this Association at its recent meeting in Charlotte; Dr. Lawrence J. Smith, Wilmington, vice-president; and Dr. George M. Cooper, Raleigh, secretary-treasurer.

The N. C. Hospital Association,

Also in annual session in Charlotte in April, elected the following officers: President, Dr. J. M. Parrott, Kinston; vice-presidents, Drs. Jas. R. Alexander, Charlotte; Paul R. MacFayden, Concord, and Miss Gilbert Muse, High Point; secretary-treasurer, Dr. John Q. Myers, Charlotte.

Portsmouth Health Bulletin.

One of the latest cities in Virginia to commence issuing health bulletins is Portsmouth. Their third monthly bulletin, issued May, 1920, has been received at this office, and Dr. L. J. Roper, health officer of that city, and his assistants are to be congratulated on the appearance of the bulletin and on the interesting material appearing therein.

U. S. Pharmacopeial Convention.

At the tenth decennial Pharmacopeial Convention, which was held in Washington, D. C., May 11 and 12, Dr. Reid Hunt, of Harvard University, was elected president, and Dr. Lyman F. Kebler, of Washington, D. C., secretary. It was decided that the new committee on revision should be composed of seventeen physicians and thirty-three pharmacists and chemists. Dr. Horatio C. Wood, Jr., of Philadelphia, was appointed chairman of the sub-committee on Scope. This is the committee in which physicians generally are most interested, as it has to do especially with the selection of drugs which are described in the Pharmacopeia.

Those who attended as delegates from Virginia were Drs. R. W. Miller, Alex. G. Brown, Jr., C. C. Haskell, James H. Smith, and W. F. Rudd and P. F. Fackenthall.

The American Association of Anesthetists,

At its annual meeting, elected Dr. Joseph E. Lumbard, of New York City, president, and Dr. F. H. McMechan, of Avon Lake, O., secretary-treasurer. The Association went on record as being "unalterably opposed to the employment of lay anesthetists, and all other types of anesthetists who shall not have been graduated from recognized medical or dental colleges and have been licensed to practice medicine or dentistry." In the discussion of this subject, it was stated that the colleges are not turning out anesthetists fast enough; that the degree of M. D. does not necessarily confer the moral right to give an anesthetic, as some people could never be anesthetists.

For this work, one needs long and special training and must be peculiarly fitted by nature—personality and training being important.

Dr. St. Geo. T. Grinnan,

A well known child specialist of this city, was one of the speakers before the Cradle Roll Conference, which was held in this city on June 6. He spoke on the subject of physical welfare of the child.

The West Virginia State Medical Association,

At its annual meeting last month, elected the following officers: President, Dr. J. Howard Anderson, Marytown; vice-presidents, Drs. Hubert E. Gaynor, Parkersburg, S. G. Moore, Elkins, Chas. O'Grady, Elkins; secretary, Dr. Robt. A. Ashworth, Moundsville; treasurer, Dr. H. G. Nicholson, Charleston.

Dr. George W. Parrott,

Formerly of Fork Union, Va., has moved to Atlanta, Ga., where he will continue the practice of his profession. His offices are in the Grand Building.

Dr. Williams Lectured in Kansas.

Dr. Ennion G. Williams, health commissioner of Virginia, in May delivered a series of lectures on disease prevention and rural sanitation at the annual school conducted at the University of Kansas, Roseland, for public health officers and nurses. The excellent health work accomplished in Virginia since the organization of the State Health Department, twelve years ago, has attracted much favorable comment among health workers throughout the country.

Dr. P. E. Tucker,

Buckingham, Va., was a recent visitor in this city, having come on personal business.

The U. S. Civil Service Commission,

Washington, D. C., reports the following examinations to be held shortly:

For junior physiologist, at $2,000 a year and quarters, on July 6.

For physician in the Indian Service, acting assistant surgeon in the Pubilc Health Service, and surgeon in the Coast and Geodetic Survey (salaries varying according to position), at any time, until further notice.

For bacteriologist at St. Elizabeths Hospital, Washington, at $2,500 a year, with temporary increase of $20 a month granted by Congress, and maintenance, on June 22.

For physician in Panama Canal Service at entrance salary of $225 a month, with increase upon promotion, on July 7 and September 8.

For full information with regard to any of these positions, communicate with the above Commission.

Drs. Morrison and Gorman.

Drs. James Morrison and James R. Gorman, of Lynchburg, Virginia, have announced their partnership, with offices at 807 church Street, that city. They will limit their practice to diseases of the eye, ear, nose and throat.

Hold To Your Liberty Bonds and Buy More.

The Government has issued the following advice: hold to your Liberty bonds and buy as many more at the present low rate as you can. They are as safe and sound as the United States Government itself; you receive your interest at stated intervals, and will receive from the Government dollar for dollar, upon maturity, whether their value rises or falls in the meantime. The present low price is due to the fact that many people are offering to sell their bonds. The man who buys them now is making money.

A Correction.

In our last issue, in the news note on "Medical Director of Memorial Hospital," we made a mistake in giving the personnel of the chiefs of the professional departments of Memorial Hospital. The name of Dr. Lawrence T. Price was given as chief of the department of surgery. This should have been Dr. Lowndes Peple.

Dr. A. W. Martin,

Formerly of Hillsville, Va., has located at Clinchco, Va., where he will continue to practice.

Dr. Allen J. Black,

Who was located at Hollins, Va., at the time of entering the medical reserve corps, U. S. Army, in July, 1917, has been in the U. S. Public Health service since October 1, 1919, and is now at U. S. Public Health Service Hospital No. 41, New Haven, Conn.

Dr. J. M. Ropp,

Until recently of Shenandoah, Va., has been attending the N. Y. Post-Graduate Medical School and Hospital since the first of May. The middle of June, he expected to go to Chicago for special work, and later to the Mayo Clinic for two weeks. About the middle of July, he will locate in Roanoke, Va., where he has been appointed assistant surgeon on the staff of Dr. S. S. Gale, chief surgeon of the Norfolk and Western Railway. Dr. Ropp has been surgeon for the railroad at Shenandoah, Va., his former home, for the past fifteen years.

New Secretary For Fairfax County Society.

Dr. E. L. Flanagan, Fairfax, Va., has been elected secretary of the Fairfax County (Va.) Medical Society to succeed Dr. Rozier C. Bayly, deceased.

Dr. E. J. Moseley, Jr.,

Richmond, who was recently operated on for appendicitis, has returned to his home.

Dr. Hugh H. Trout

And family, of Roanoke, Va., expected to go early in June to "Summerdean," their country home near Hollins, Va., for the summer season.

Dr. James J. Durrett,

Who, during the war, was in charge of sanitation in the military establishment on the Virginia peninsula, with headquarters at Newport News, and who has since the war been doing community sanitation work, will, on July 1, become head of the Memphis, Tenn., Department of Health. It is also announced that he will have charge of a chair of public health at the University of Tennessee, College of Medicine, Memphis, when the next term begins in September.

Gift To Home and Retreat of Lynchburg.

The sum of $20,000 has been added to the fund being raised in Lynchburg, Va., for the new hospital for Marshall Lodge (Masonic) Home and Retreat, by a gift from Mrs. Max Guggenheimer, of that city.

Dr. Frank P. Righter,

Medical director of the Atlantic Life Insurance Company, is preparing to build a new home at Duntreath, on the Three Chopt Road, just outside of this city.

Dr. and Mrs. Loren E. Cockrell,

Of Reedville, Va., in May took a trip which included visits to Richmond, Norfolk and Charlottesville.

Dr. and Mrs. H. Ward Randolph

And children, of Richmond, enjoyed a motor trip to Reedville, Va., in May.

Dr. Thomas S. Hening,

Of Jefferson, Va., was a delegate from Powhatan County to the recent Democratic convention in Roanoke, Va.

Dr. Frank C. Hodges,

Of the class of '17, Medical College of Virginia, is now making his home in Huntington, W. Va., and is secretary of the Cabell County (W. Va.) Medical Society.

A Popular Move.

The health commissioner of Chicago recently started a reducing class for fat women. So successful was his work in the first week that in a few days the class jumped from twenty-four to nearly two hundred. The average weight of the first twenty-four women, upon starting the reducing, was 201.66 pounds. By the end of the first week, the average weight had dropped to 197.76 pounds.

Dr. Raymond H. Brockwell,

Of Richmond, was one of the two Virginians whose names appeared in the "Fifty High Guns for 1919", in a recent copy of Sportsmen's Review. This means that out of many thousands of trapshooters in registered tournaments in the United States and Canada, in 1919, he was one of the fifty best shooters in the Western Hemisphere.

Dr. H. Cowles Rucker,

Who has recently been practicing at Clinchco, Va., has located at Mattoax, Va., and will practice in that section.

French Casualties in War Enormous.

In a recent statement given out as to France's war losses, it is announced that during the five years of war, 8,000,000 men were mobilized, of whom 1,400,000 were killed, 800,000 maimed, and 300,000 wounded. France thus lost 57% of her men under 32 years of age.

Dr. V. W. Quillen,

Who has been located at Exeter, Va., has recently moved to Nickelsville, Va.

Married—

Dr. Booker Ephram Rhudy, of Abingdon, Va., a graduate of the class of '16, Medical College of Virginia, and Miss Margaret E. Hatch, of Chesterfield County, Virginia, May 3.

Dr. Henry C. Smith,

Crewe, Va., has announced his candidacy for election to Congress from the Fourth Congressional District, this State.

Dr. and Mrs. J. N. Upshur

Have returned to their home in Richmond after a visit on the Eastern Shore of Virginia and later in Washington, where they were guests of their son, Lt. Col. Alfred P. Upshur, U. S. Army mediacl corps.

Medical Society of D. C. To Have New Home.

The cornerstone of the new home of the Medical Society of the District of Columbia was laid on May 6, Dr. Charles W. Richardson presiding over the ceremonies. The new building is to be at 1716 and 1718 M Street, N. W., and it is expected that it will be ready for occupancy in November. At the exercises, short addresses were made by Dr. Francis R. Hagner, president of the Society, and by Drs. Wilfred M. Barton, Jos. S. Wall, and John B. Nichols. Dr. Tom A. Williams presented a handsome donation from one of his friends who was much interested in the movement.

Dr. William P. Caton,

Who has been connected with the health campaign being conducted in Pittsylvania County, Va., has resigned from health work and, after the middle of this month, will be located at 224 S. Washington Street, Alexandria, Va

Dr. Henry R. Carter,

Assistant Surgeon General, U. S. P. H. Service, is now in Baltimore, after some time spent with the Rockefeller Foundation party fighting yellow fever in northern Peru. He expects shortly to return to Peru to succeed Gen. William C. Gorgas, who has been adviser in sanitaion for Peru and who has been called to South Africa

Fight Whooping Cough.

The fact that during the first three months of 1920 there were reported in Virginia the deaths from whooping cough of 118 children, causes the State Health Department to urge the more general use of whooping cough or pertussin vaccine in fighting this disease. Excellent results have been obtained from its use, even when the child has begun to cough, though its use is especially recommended for children who have been exposed to the disease and have not commenced to cough.

This vaccine will be furnished at cost by the State Board of Health, if it cannot be obtained from local sources.

Dr. Horsley Honored.

At the recent meeting of the American Medical Association, in New Orleans, Dr. J. Shelton Horsley, of this city, was elected a member of the Council on Scientific Assembly for a period of five years.

Dr. Charles U. Gravatt,

Port Royal, Va., was elected at the State Democratic convention in Roanoke one of the delegates to represent Virginia at the San Francisco convention.

Dr. W. W. Chaffin,

Pulaski, Va., last month visited his daughter, who is a student at Randolph-Macon Institute, Danville, Va.

Dr. James C. Doughty,

Onancock, Va., is delivering a series of lectures on first aid to the pupils of the Onancock High School.

Dr. George B. Wheeler,

Of Cressmont, Ky., has been visiting Dr. B. B. Wheeler, of Clifton Forge, Va., and while with him has been assisting in the work of the C. & O. Hospital, at that place.

Dr. and Mrs. S. C. Draper

And son, of Pulaski, Va., were visitors in Richmond in May, having come here to attend the marriage of their brother, Dr. B. E. Rhudy, which took place near this city.

Dr. W. Fewell Merchant,

Of Manassas, Va., was elected vice-commander of the Prince William County Post of the American Legion, which was organized in that place in May.

A Good Record Made By Norfolk.

As an evidence of the good work being accomplished by the Norfolk, Va., Health Department, there were reported during 1919

only six deaths from typhoid fever out of a population of nearly 116,000, as given by the recent census.

Dr. J .S. Weitzel,

Of this city, delivered a lecture on infant feeding in the special course in nursing, which was given last month at the Prsebyterian Assembly Training School, at Ginter Park, Richmond.

The American Medical Editors' Association,

At their annual meeting recently held in New Orleans, elected the following officers: President, Dr. H. S. Baketel, New York; vice-presidents, Drs. Frank Lewis, New York, and F. H. McMechan, Avon Lake, O.; and secretary-treasurer, Dr. Joseph MacDonald, Jr. (re-elected), New York.

Dr. J. N. Barney,

Of Fredericksburg, Va., is still with the medical corps of the Army and, with the rank of major, is connected with the 8th Aero Squadron, at McAllen, Texas.

Capt. Samuel E. Brown, M. C.,

Of Norfolk, Va., is now at Kelly Field, San Antonio Teexas.

Dr. E. D. Davis,

Formerly of Harrisonburg, Va., is now located in Hagerstown, Md., and is specializing in diseases of the eye.

Dr. John H. Bell,

Formerly of Bridgewater, Va., but who located in Staunton after receiving his discharge from the medical service of the army, is at this time in France on a mission for the American Red Cross.

Dr. Ralph E. Duncan,

Formerly of Northampton County, Va., is now located at 723 St Paul St., Baltimore, Md.

Dr. Everett S. Barr,

Formerly of Amelia, Va., is associate physician at Cromwell Hall Health School, Cromwell, Conn.

Henry County Starts Upon Health Campaign.

Dr. E. C. Harper, field director for the State Board of Health, who has been in charge of the Prince William County campaign, will close his work in that county June 15, and will be transferred to Henry County, where he will at once begin organization of a health unit for a year's campaign.

Blue Ridge Sanatorium In Full Blast.

Blue Ridge Sanatorium, Virginia's newest institution for the treatment of those suffering from incipient tuberculosis, is taking in patients rapidly. It was opened on the 26th of April and, to the end of May, had enrolled 41 patients. Its capacity is 120 beds.

This sanatorium is delightfully located in Albemarle County, in full view of the city of Charlottesville. Its medical director is Dr. Walter C. Klotz, who has had much experience in this line of work.

Dr. and Mrs Robert C. Bryan

And children, of this city, will visit relatives in Maryland for several weeks, before going to Biddeford Pool, Maine, for the late summer season.

The Association of American Physicians,

At their annual meeting held in Atlantic City in May, elected Dr. William S. Thayer, Baltimore, president, and Dr. Thomas McCrae, Phildelphia, secretary.

West Virginia Cancer Commission.

Dr. Frank L. Hupp, Wheeling, W. Va., has been made chairman of the Cancer Commission in West Virginia, and he has appointed division chairmen who, with him, will constitute the West Virginia Committee. Each of the following is commissioned by Dr. Hupp to organize the campaign in his particular district: Drs. J. E. Cannaday, Charleston; Wade H. St. Clair, Bluefield; Chester R. Ogden, Clarksburg; W. W. Golden, Elkins; C. S. Fleming, Fairmont; J. Ross Hunter, Huntington; Chas. S. Hoffman, Keyser; John N. Simpson, Morgantown; J. Howard Anderson, Marytown; and Mary V. McCune Rossa, Martinsburg.

Dr. Osler's Library.

Sir William Osler, who died last winter, bequeathed his library, medical and scientific, to McGill University, in Montreal, Canada.

Dr. S. M. Yancey,

Who has been located at Dayton, Va., has moved his drug store and offices to Harrisonburg, Va., where he will practice hereafter.

Dr. and Mrs. George C. Hall,

Of Richmond, left early this month for a visit of several weeks in Gloucester County, Virginia.

Paris Had Worse Flu Epidemic In 1919.

According to official figures just given out, the mortality from influenza in Paris, France, was much greater in 1919 than in previous epidemics. There were 10,281 deaths, the rate being heaviest among expectant mothers.

Prof. Roentgen Has Retired.

At the close of the winter semester, Professor W. C. Roentgen, of Wurzburg, retired from the chair of experimental physics at the University of Munich, and also his position at the Physikalisches Institut. Although not a physician, by his discovery of the Roentgen rays, in 1895, he has rendered a service to the medical profession which is of inestimable value. He is now 75 years of age.

The Medical Women's National Association,

At their annual meeting in New Orleans, elected Dr. Mary Elizabeth Bass, New Orleans, president, and re-elected Dr. L. Rose H. Gantt, Spartanburg, S. C., recording secretary-treasurer.

State Commission on Medical Education.

Governor Davis has just appointed five members on the State Commission on Medical Education in Virginia. These, with the appointments made by the last General Assembly, will constitute the body to investigate and make recommendation regarding the merging of the Medical College of Virginia with the medical department of the University of Virginia. The Governor's appointees are: Dr. Treodore Hough, of Charlottesville; Dr. Stuart McGuire, of Richmond; Dr. Beverley R. Tucker, of Richmond; Dr. James H. Dillard, of Charlottesville, and Julian A. Burruss, president of Virginia Polytechnic Institute, Blacksburg.

Members of the commission named by the last General Assembly were: J. Belmont Woodson, of Nelson, and Marshall B. Booker, of Halifax, from the Senate, and Wilbur C. Hall, of Loudoun, and Dr. William D. Prince, of Sussex, from the House.

Wanted—Physician to take over general practice and do X-ray work in my hospital. Excellent opportunity for right party. References exchanged. Address, Robert T. Ferguson, M. D., Gaffney, S. C. (Adv.)

Obituary Record.

Dr. Eugene C. Powell,

One of the most prominent and beloved citizens of his county, died May 18, at his home in McKenney, Va. He was born in Dinwiddie County, this State, eighty years ago and, upon completing a course at Randolph-Macon College, studied medicine at the University of the City of New York, graduating in 1861. He then served as hospital steward and acting assistant surgeon in the Confederate States Army. He was a member of the House of Delegates of the General Assembly of Virginia, 1875-7, was for twenty-seven years superintendent of the public schools of Dinwiddie county, and for fourteen years was president of the Bank of Dinwiddie. He joined the Medical Society of Virginia, in 1893 and was elected an honorary member in 1906. Several children survive him.

Dr. William Barber Fellers,

Of Roanoke, Va., died in that city April 23, from carcinoma of the kidney. He was thirty-six years of age, and studied medicine at the University of Maryland, Baltimore, from which he graduated in 1910. Dr. Fellers was a member of the Medical Society of Virginia.

Dr. John Chalmers DaCosta, Jr.,

Philadelphia, died April 26 from a fracture of the skull sustained in an automobile accident. He was 46 years of age and a graduate of Jefferson Medical College in 1893. He was well known as a specialist in internal medicine, a teacher and an author. At the time of his death he was associate professor of medicine in Jefferson Medical College.

Dr. Henry Holbrook Curtis,

A prominent laryngologist and otologist of New York City, died at his home in that city, May 15, from diabetes with complications. He was 63 years of age and a graduate from Yale University, School of Medicine, in 1880. He was an ex-president of the American Laryngological, Rhinological and Otological Society.

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Original Communications

THE RELATION OF FOCI OF INFECTION TO THE GRAVE ANEMIAS.*

By FREDERICK C. RINKER, M. D., Norfolk, Va.
Visiting Physician, Sarah Leigh Hospital.

The progress of medicine has greatly reduced the use of indefinite terms as applied to disease conditions, by the demonstration of their true etiology and pathology. So, we have come to view such terms as idiopathic, essential, etc., as admissions of ignorance, a viewpoint which is destined to bear fruit in the future and a more exhaustive study of the illusive clinical conditions. In this we should consider so-called primary pernicious anemia.

Though no classification of the anemias from a clinical viewpoint has as yet been established as wholly satisfactory, a separation as follows may prove helpful:

1. Those due to hemorrhage.

2. Those due to defective or decreased blood formation.

3. Those due to increased blood destruction; the hemolytic anemias.

The following separation of the hemolytic anemias is suggested.

(1) Hemolytic anemias resulting from the focalized infections.

(2) Hemolytic anemias resulting from syphilis.

(3) Hemolytic anemias resulting from neoplasms.

(4) Hemolytic anemias resulting from the invasion of parasites.

(5) Hemolytic anemias due to certain chemical poisons, as potassium chlorate; nitrobenzine and the snake venoms.

(6) Hemolytic anemia which accompanies congenital icterus.

The hemolytic anemias resulting from focalized infection have, I believe, been misnamed as idiopathic anemia, Addison's anemia, Biermer's anemia and pernicious anemia. This paper is devoted to this group.

The blood picture of secondary hemolytic anemia of known origin may so simulate the so-called pernicious anemia picture as to be almost indistinguishable from it. These grave secondary anemias form a group recognized as curable by removal of the cause, thereby indicating the possibility of ultimately eliminating the terms "pernicious" and "primary."

Hunter has called attention to the fact that severe anemias may have their origin in septic conditions of the mouth, especially in diseased conditions about the roots of teeth and pyorrhœa alveolaris. He calls these septic anemias and refers to them as Addison's anemias.

If severe anemias can result from infection in the mouth, why may they not also result from focalized infection elsewhere in the body? In most cases of acute or chronic infection there is an accompanying anemia of varying degree which is apparently dependent upon the toxicity of the infecting agent and individual body resistance.

The endotoxines or bacteremia resulting from infection may cause either an hemolysis or a paralysis of the erythrogenetic center. Evans says: "That bacteria may invade the bone-marrow without resulting suppuration is possible, the bacteria are probably rapidly destroyed and the resulting endotoxines produce a faulty hyperplasia seen in severe types of anemia." Such toxicity may call upon the blood-forming organs for more rapid production, and as a result the infantile forms are forced into the circulating blood from the erythrogenetic center, thus accounting for the presence of megaloblasts and normoblasts found in the blood picture of the graver anemias.

In a series of cases studied during the past five years, I have noticed rapid recovery in the blood picture and symptoms of patients suffering from severe anemia, following the

*Read at a meeting of the Norfolk County Medical Society.

removal of infectious processes in which the infecting organisms seemed to possess marked hemolytic properties. This suggests the possibe etiologic relation of certain infections to the graver types of anemia.

The symptoms of these cases were as follows:

1. A gradual onset of weakness and fatigue, increasing pallor, loss of weight, marked nervous irritability, dyspnœa, gastrointestinal disturbances of varying degree, insomnia and, at times, edema of the extremities. Some cases exhibited an afternoon rise in temperature. Several of the series complained of numbness in the feet and legs and exhibited an ataxia, indicating spinal cord anemia as described by Bassoe, Billings, and others. Paresthesia and sometimes anesthesia may be included in the symptomatology.

The blood pictures presented a high degree of oligocythemia with relatively high color index, poikilocytosis, anisocytosis and, in some of the cases, nucleated red cells. The leucocytes were at times slightly increased, but usually there was a leucopoenia.

In the entire series of 20 cases some focus of infection was located. Twelve of these cases were cured and six were much improved following the removal of infections and general treatment. Two cases died while under treatment.

It is scarcely necessary for me to emphasize the necessity of painstaking regimen in the diagnosis and treatment of the anemias. Hunter has called attention to the importance of not being content with a single measure in the care of these cases, and insisted upon "The general management of the case with close observation of all its features, especially of its fever and its hemolytic symptoms, extending not only over the period of acute illness, but also over many months and years subsequent to the first remission." Thus, when the symptoms and blood picture of a patient indicate a severe type of anemia with a relatively high color index and abnormal red cells, it is our duty to begin a thorough search for some underlying cause. Hemorrhage, intestinal parasites, syphilis, neoplasm, chemical poisoning, etc., being eliminated, we then turn to the question of focalized infections. In this study the open avenues of infection should be given *first* consideration for the localization of possible infectious processes in the teeth, tonsils, nose and accessory sinuses, remembering that infection may exist in the nose and sinuses without suppuration, and *secondly*, our attention should be diverted to the ear, gall-bladder, appendix, heart, joints and genito-urinary tract for some possible secondary focus of infection.

An infectious process or processes having been located, the following routine treatment is suggested:

1. The patient should be put to bed at absolute rest.

2. The diet is of great importance, such foods being given as will give the greatest amount of nourishment. Feeding should be given frequently, every 3 or 4 hours, and in small quantities.

3. Mild sedatives may be used to encourage sleep, if necessary.

4. Iron and arsenic are indicated especially in these cases in order to stimulate the blood-making organs. These drugs are utilized to best advantage when given hypodermically; I prefer the ampule preparations prepared by the various drug houses. One ampule of iron and arsenic may be given intramuscularly twice a day or sodium cacodylate gr. 1 or 11 may be used once a day. The kidneys should be watched carefully during the administration of these drugs.

5. These patients may be prepared for surgical intervention as soon as possible. Some of the anemia patients have a tendency to hemorrhage, particularly those showing some evidence of purpura hemorrhagica. The coagulation time, if taken, will be a guide in these cases and, if found to be increased, I have used horse serum to the exclusion of other materials which tend to shorten the clotting time, with excellent results in preparation of the patient for operation.

The cases bear the operations necessary for the removal of the primary foci of infection very well. Surgical procedures should be done under local or gas-oxygen anesthesia if possible. The removal of primary foci is usually followed by rather rapid improvement in the blood picture and general condition of the patient. If a secondary focus exists in gall-bladder, appendix, prostate, etc., it can be removed after the patient has been gotten into better shape. Barker reports a case with 38% hemoglobin and 1,400,000 red cells from whom several infected teeth

were removed. The operation was followed by rapid improvement in the patient's condition, and after the hemoglobin had reached 80% the patient's prostate was successfully removed. One of my cases, having hemoglobin of 25% and red cells of 1,020,000, was treated routinely until the hemoglobin reached 55% and red cells 2,600,000, when the tonsils were removed. Later, after the hemoglobin had reached 80% and red cells 4,200,000, her gall-bladder was successfully removed.

Blood transfusion is of value in preparing these cases for early operation, but it is not recommended as a curative measure.

Following operative procedure, it is important to continue the general hygienic care, rest, diet, and iron and arsenic treatment, until there has been a definite improvement in the blood picture. The patients being allowed up may gradually resume the activities of life as the general condition and blood picture approach normal.

Conclusions.

(1) It is suggested that focalized infections may be the underlying cause of the so-called idiopathic and primary types of anemia.

(2) After the removal of primary foci of infection, a thorough search for secondary foci should be made, and they should be removed.

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Discussion.

Dr. J. L. Rawls: If I understood Dr. Rinker's paper correctly, he would do away with the term primary anemia in all cases except the anemia due to hemorrhage. He considers all other anemias secondary with some variation in the blood picture.

As regards the removing of spleens referred to by Dr. Winston, in pernicious anemia cases, Percy, Ochsner's associate in Chicago, began removing spleens in these cases several years ago. They have reported a sufficient number of cases in which they have apparently arrested an otherwise hopeless condition, to make it appear a worth while procedure. They report one case living and well, I think, eight years after a splenectomy.

The last time I was at Augustana, Dr. Ochsner was removing the spleen, gall-bladder and appendix all through the same incision. This sounds like a very formidable proceding, but in Dr. Ochsner's hands it takes about thirty minutes. These patients were first transfused, generally from two to four times before operation. He did not mention the possibility of a focalized infection in the gall-bladder or appendix, that I recall, but I did hear him say that the spleen, normally the burying ground of worn out red blood corpuscles, in these cases apparently ran wild and destroyed good as well as bad red cells, so he took it out.

Dr. Smith, who has just returned from Rochester, says that they have abandoned the practice of removing spleens in pernicious anemia cases at the Mayo Clinics.

Dr. W. B. Martin: Dr. Rinker has given us an excellent classification of the anaemias in that he has divided them into groups depending upon whether the anaemia is due to blood loss or destruction, or whether it is due to deficient blood formation. This is the classification now generally accepted as the rational one and is much to be preferred to the old division into primary and secondary groups.

The so-called pernicious anaemias, under discussion tonight, fall in the group of hemolytic anaemias. There is no doubt that the term primary or pernicious has been used to include grave anaemias due to various causes. Gradually, the etiology of certain cases has been established and groups due to carcinoma, lues, chemical poisons and parasitic infections have been separated. There still remains a group of grave anaemias concerning the etiology of which we know practically nothing. Dr. Rinker's assumption is, I believe, that all cases of the pernicious type of anemia not due to one of the factors mentioned above are the result of focal infections.

This is certainly a difficult thesis to establish. The mere fact that a focal infection exists in the body coincident with a grave anaemia does not prove that the anaemia is due to the infection. Spontaneous remissions are so common in pernicious anaemia that results obtained by any method of treatment must be interpreted with great caution. Infection with the dibothriocephalus latus is frequently accompanied by an anaemia clinically similar to the so-called pernicious type, but no one would assume that all the cases of primary anaemia are due to infection with that parasite, for the reason that in many cases of anaemia the parasite is not found and that in the majority of cases harboring the parasite anaemia is not found. The same reasoning applies to focal infection. Many cases of typical pernicious anaemia have been thoroughly studied antemortem and postmortem without being able to demonstrate foci of infection. Thousands of individuals harbor extensive focal infection without developing a pernicious type of anaemia.

The most that we can assume from the cases reported tonight is that in certain cases of anaemia, resembling clinically pernicious anaemia, marked improvement or permanent relief was obtained by removal of infection.

THE ATROPINE TREATMENT OF PYLOROSPASM IN INFANTS.*

By CLAIBORNE WILLCOX, M. D., Norfolk, Va.

In the October number of the *Archives of Pediatrics*, there appeared an article by Dr. Sydney V. Haas, of New York, entitled "The

*Read at a meeting of the Norfolk County Medical Society.

Atropine Treatment of Pylorospasm and Pelvic Stenosis." In this, the author says that a careful consideration of the etiological factors of these so closely allied conditions would seem to point to a disturbance of physiological function of the vegetative nervous system, and that clinical experience seems to justify the hypothesis that disturbance in function of this system is the chief, if not the only, factor in their etiology. Under this hypothesis, hypertrophic pyloric stenosis is considered as simply an advanced degree of pylorospasm. This does not gainsay the existence of pyloric stenosis of organic origin, but does refer to the many cases of hypertrophic pyloric stenosis so liberally reported in the literature as requiring operation for relief. Operation should be a rarity for this condition, and should never be practiced until atropine has been tried.

Upon the hypothesis that the vegetative nervous system is at fault, the use of atropine presents itself as a rational therapeutic agent, since it paralyzes the vagus ending. Clinical experimentation along this line has shown remarkably consistent results, all cases of these two conditions coming under the author's observation in the past four years having been cured by the use of atropine.

The dosage must be sufficient and the drug in condition. The dosage is from 1-50 to 1-25 of a grain per day, given as follows: A 1 to 1000 solution is used, and one drop of this given in or just before each feeding. This is increased one drop per dose per day up to three or four drops, unless there should be flushing of the face, mydriasis, dryness of the mouth, etc.

Case No. 1. Baby three months old; weight at birth, 8 lbs.

Complaint, vomiting; present weight, 12 lbs.

F. H. Negative.

P. H. Full term baby with normal delivery, breast-fed since birth, and up to present illness has done well—gained regularly, normal stools and, slept well.

P. I. Baby began vomiting two days before it was seen—vomited after almost every feeding, shooting milk out. Has had several small stools with green and mucus.

P. E. The child gave the appearance of a well nourished, healthy baby. Examination revealed nothing abnormal.

Treatment.—The mother had been arrested and tried in the Police Court several days before, and for that reason the child was taken off the breast, given nothing by mouth for twenty-four hours, then barley water for twenty-four hours, then diluted breast milk, etc. The baby seemed to improve, and was not seen again for five days, when the mother brought it to the office, saying it was much worse and vomited after every feeding. Bowels moved only with the assistance of enemata. The weight had dropped from 12 to 10 lbs. 5 ozs. It was nursed in the office, and after it got 3½ ozs. it seemed uncomfortable and stopped. Observation revealed visible gastric peristalsis, and shortly there was projectile vomiting. The baby was sent to the hospital and put on 5 min. nursing every 3 hours and 1 drop of a 1 to 1000 solution of atropine, which was increased the following day to two drops. A further increase to three drops was followed by physiological symptoms and the dose was reduced to two drops, and this continued. The improvement was marked from the beginning and, after five days, vomiting ceased altogether. The atropine was continued three months and at the present time, five months after the beginning of the treatment, the baby weighs 18 lbs., and has had no return of the trouble.

Case No. 2. Baby five weeks old. Birth wt. 8½ lbs.

Complaint: Vomiting. Present wt. 7 lbs.

F. H. Negative.

P. H. First child of healthy parents, breast-fed from birth and did well for three weeks, up to time of present illness. When about three weeks old, baby began to vomit after two or three feedings a day and, in a few days, after every feeding. Stools were scant, with green and mucus. Various measures were tried by the local physicians without success.

P. E. The patient was a small baby moderately jaundiced, with cold extremities and a constant cry—looked ill. Observation after nursing showed visible gastric peristalsis and projectile vomiting.

Treatment.—The baby was put on 3 min. nursing every 2 hours, with one drop of a 1 to 1000 solution of atropine before each feeding. The dosage the following day was increased to two drops. There was improvement from the beginning, and at the present time, one month from the beginning of the treat-

ment, the child is gaining consistently, and there has been no return of the vomiting.

I realize that two cases are not enough from which to draw definite conclusions, and also that it is not possible to say how much of the results were due to atropine and how much to the dietetic change and general management, but I believe, for the present at least, that in these cases the atropine treatment should be given trial before operating.

540 *New Monroe Building.*

Discussion.

Dr. W. P. McDowell: I have listened with a great deal of interest to the good results obtained by Dr. Willcox in the management of his cases of pylorospasm by the use of atropine. I have also read the article by Dr. Haas to which he refers. Prior to reading this article I had used atropine in the treatment of similar conditions but I am sorry to relate that my results have not been so satisfactory.

As to the pathology involved in stenosis of the pylorus in early infancy quite diverse views are held. Some claim that pylorospasm and organic hypertrophy occur as separate and distinct entities. Others contend that pylorospasm is the primary element and that when hypertrophy occurs it is the result of an over-stimulated sphincter muscle; while still others (and I think that the majority of authorities hold to this view) insist that the primary and essential element is one of hypertrophy of congenital origin, with the spasm occurring as a secondary complication. From my own limited experience and from observations made at autopsies, I am inclined to accept the latter hypothesis.

While I must admit that there are some cases which will improve and are cured under any one of the varous medical treatments, yet I insist that any case, in which there is persistent vomiting and progressive loss of weight associated with gastric peristalsis and a distinct tumor, should be subjected to surgical treatment. In the hands of a competent surgeon the Rammstedt operation is such a simple procedure that I do not feel that we are justified in procrastinating or temporizing with these little patients.

Dr. Dandridge P. West: There is no one thing in the whole range of medicine so trying as the treatment of a vomiting baby. The causes of vomiting in infants are so many that it is most difficult often to isolate one definite thing. In the paper on pylorospasm by Dr. Haas, and quoted by Dr. Willcox, the author corrects the faulty feeding of each case while instituting his atropine treatment. The diagnosis of pylorospasm is, therefore, questionable in these cases.

The consensus of opinion now is that there is no true pylorospasm without a pyloric stenosis. My own experiences in the treatment of questionable stenoses with accompanying pylorospasm by the atropine treatment have, like those of Dr. McDowell, been failures. Vomiting babies without true stenosis can be cured by careful dietetic treatment; true stenosis calls for operative measures.

In conclusion, I should like to ask Dr. Willcox on what basis did he make his diagnosis of pylorospasm.

Dr. L. F. Magruder: I have been much interested in both papers of the evening and in the discussion.

While Dr. Willcox's paper has been ably discussed by several men who have been doing pediatrics for a number of years, I wish to say just a few words from the standpoint of a roentgenologist.

In the diagnosis of these conditions the fluoroscopic examination is of great value. This method gives us quite a definite picture in true pyloric stenosis, the opaque meal first filling the prow shaped pylorus but soon assuming the shape of a ball at the most dependent portion of the great curvature. Soon there is exaggerated peristalsis with small flecks of the opaque meal appearing in the small intestines. In pylorospasm we do not have the increase in peristalsis as seen in stenosis.

In adults, we frequently see cardiospasm and hour-glass contraction without any lesion. These spasmodic conditions are relieved by full doses of atropine. It is my opinion that there may be true pylorospasm in an infant without organic stenosis or lesion and that atropine is the drug of choice in this condition.

Dr. C. D. Kellam: I have to take issue with the preceding speaker when he states that practically all cases of spasm of the pylorus in children are due to a tumor and should be operated upon for the same.

We frequently see disturbances of the vegetative nervous sytem producing motor neuroses of the stomach and at times a typical pylorospasm. This may be due to a true vagus hypertonia, due to excessive stimulation of the vagus; or a relative vagus hypertonia, due to a depression of the sympathetic nerve supply of the part. The vagus supplies the circular fibres of the stomach and pylorus and is responsible for the reflex spasm of same. We know that atropine paralyzes the motor endings of the vagus, therefore a pylorospasm of this source must yield to an adequate dose of atropine.

Dr. Willcox: Answering Dr. West, I admit the first two sentences of his discussion.

Dr. Haas, in his paper, which by the way, is not on pylorospasm, but on the atropine treatment of pylorospasm and pyloric stenosis, reports cases on all kinds of feeding, some proper and some improper. Naturally, if the feeding is faulty, he corrects it just as he would have to in the operative or any other treatment. I do not understand why this makes his diagnosis questionable.

I disagree with Dr. West in his statement that "The consensus of opinion now is that there is no true pylorospasm without pyloric stenosis," also in his. "Vomiting babies, without true stenosis, can be cured by careful dietetic treatment." Of course, where the trouble is dietetic the treatment is dietetic and, conversely, where the trouble is not dietetic the treatment is not dietetic.

I think that everybody believes that the treatment of the organic stenosis is surgical.

My diagnosis was based on the following: A breast-fed baby doing well for several weeks began to vomit, have more or less constipation; vomiting was persistent and projectile in type. Observation revealed visible gastric peristalsis. There was no palpable tumor and I called the condition pylorospasm. There was probably a partial hypertrophic stenosis, but it is not posible to diagnose stenosis in the absence of a tumor without seeing inside the abdomen.

Medical Society of Virginia will hold its next meeting in Petersburg, October 26, 27, 28 and 29, 1920.

THE MANAGEMENT OF RENAL INSUFFICIENCY.

By WILLIAM B. NEWCOMB, A. B., M. D., Norfolk, Va.

Within the past few years, numerous functional tests, serving to measure the efficiency of the kidney and to indicate the extent of retention within the body of urinary products, have been devised. The routine use of these tests has very materially advanced our knowledge of kidney function and very markedly improved our treatment of kidney disease. Some of these tests contribute chiefly to the early recognition of impaired renal function; others serve as intelligent guides to treatment; another is of especial value in prognosis.

The most important of these tests are:

1. The measure of the ability of the kidney to concentrate urine;
2. Phenol-Sulphone-Phthalein test;
3. Chemical tests (estimation of urea, nonproteid nitrogen, creatinin and uric acid in the blood, Ambard's coefficient, etc.).

The last of these tests requires somewhat more of apparatus and skill than is available for those general practitioners who have not access to a well-equipped laboratory. The writer wishes to emphasize the importance of the chemical tests and to affirm that they often give information which can not be obtained from any other source. Further discussion of them will be omitted from this paper, however, because it is his purpose here to bring to the attention of the profession the fact that the simpler and less elaborate of these tests can be competently done by any general practitioner, and will furnish practicaly all the information that will be needed for the proper management of patients with renal insufficiency.

The first test is a measure of the ability of the kidney to excrete concentrated urine. In applying this test the patient is put on a standard test diet. The day urine is collected at two-hour intervals (8 A. M. to 10 P. M.) in separate vessels. The total night voidings (10 P. M. to 8 A. M.) are collected in a single vessel. Specific gravity readings are made on each of the day specimens and on the night specimen. These are recorded. The total amount of the night urine is compared with the total of the day voidings.

A very mild degree of renal insufficiency is apt to manifest itself in a tendency of the kidney to excrete urine of a fixed low specific gravity (a specific gravity of 1020 would be taken as evidence that the kidney was able to concentrate the urine to a sufficient degree to be classed as normal) and a relative increase in the mount of the night urine. Mosenthal states that the normal amount of urine during the 10-hour night period is abont 400 c. c., or less, although it may go as high as 750 c. c. *Nocturnal polyuria* and a *low fixed specific gravity*, while exceedingly simple observations, are none the less of the greatest significance, as they are often the very earliest evidences of impairment of renal efficiency.

The Phenol-Sulphone-Phthalein test has been in routine use so ong, and the details of the simple technique of the test are so well known, that we will only mention it. Measured from time to time upon the same patient and the findings recorded for future comparisons, the test has its greatest value as a guide in prognosis.

Carefnl consideration of (1) the clinical symptoms complained of, (2) the abnormal findings in a complete physical examination, (3) the data obtained from testing the functional efficiency of the kidneys by the simple methods given above, will give all the information needed for the earliest recognition of impaired renal function, for a measure of the degree of impairment, for an estimation of the progression or regression of the disease, and for a determination of the success of various methods of treatment.

There is a tendency to treat all cases of nephritis more or less alike. This method of treatment usually embraces, among other measures, a strict limitation of the protein and salt in the patient's diet and a marked restriction of his physical activities with prescribed hours of rest. This regime has most assuredly been beneficial and has, no doubt, prolonged many lives and prevented much invalidism; but it is very obvious that, if this treatment is applied indiscriminately and in an unmodified form to all patients with nephritis, great harm will be done. Cases of nephrosis (parenchymatous nephritis) with the degree of secondary anæmia and the evidences of lack of nourishment usually exhibited by them, will do very badly indeed upon any such routine. These patients require for their proper treatment just the elements of which this strict method of dieting de-

prives them. Having this idea in mind, Epstein was led to test the efficiency of such kidneys by feeding a full diet, especially high in protein. He found the diet well borne and that his patients improved. He therefore recommended the feeding of a high protein diet to certain classes of patients with nephritis (contraindicated in patients with high blood urea or non-proteid nitrogen). Sir Clifford Abbott, writing on the subject in the British Medical Journal, endorses this idea. It is in this class of patients that transfusion has been of such great value. Transfusion is now so simply done and is so thoroughly satisfactory that its indications, as a therapeutic procedure, have been very greatly extended. Perhaps the writing down of a dogmatic rule is not a good idea; but it is our custom to advise transfusion for all properly selected cases of nephrosis whose hemoglobin is 60% or less.

For those patients who give no clinical evidences of renal insufficiency and whose functional tests show only a slight deviation from the normal, a limitation in mental and physical activities and a restriction in diet will usually work wonders. The restriction in diet, however, can be made too severe and thereby defeat its own purpose. An individual during starvation will excrete about 8 grams of nitrogen per day in his urine but, if the same individual is put on a high carbohydrate diet (sparing body proteid), he will excrete only about 4 to 5 grams. It is obvious that this fact has a most important bearing upon the determination of the best diet in renal insufficiency.

Formerly, many of us in dieting patients with nephritis made use of the "Karell diet" (30 ounces of milk a day, no other food or fluid). A diet high in carbohydate content and containing little or no protein is infinitely preferable in most cases, because it diminishes the work of the kidney, and reduces the nitrogen retention much more satisfactorily than the Karell diet. It is also, of course, more acceptable to the patient.

Edema responds so readily to the institution of a salt-free diet that it rarely gives any serious concern. In fact, the edema in itself probably does very little harm. It indicates a negative salt and water balance.

It has been the writer's experience that diuretics are useless in uncomplicated cases of nephritis. In cases with myocardial insufficiency associated with nephritis, digitalis in proper dosage, with a diuretic of the caffein group, acts almost as a specific!

Uremia is best treated by being prevented. By this is meant that if the patient's diet and habits are kept within his limitations and his condition carefully watched, uremia is not likely to supervene. What was said of diet in the earlier part of this article holds equally true of uremia. Let us emphasize the fact that a diet *high* in *carbohydrate* and *very low* in *protein* will, by sparing body protein, favor the complete elimination of nitrogen better than any other diet at our command.

The value of glucose in the treatment of nephritis requires special mention. It is a most efficient aid in promoting elimination and can be given through the stomach tube, per rectum, or most successfully intravenously. Ten per cent. or twenty per cent. glucose solution, given as an infusion, has been of inestimable service in suitable cases. Water should be given to the amount of 3 quarts in the 24 hours. Bleeding, purging and sweating are of some value.

Uremia is usually defined as a toxic condition resulting from the retention within the body of substances which should be eliminated by the kidney. All of us have seen, however, a clinical condition typical of uremia occur suddenly in a patient who gave no evidence of an increase of urinary secretory products in the blood and whose renal function was normal, or nearly so. The explanation of such an occurrence must await an understanding of the nature of the toxic substances concerned in uremia, and the discovery of the source of these substances.

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THE USE OF RADIUM IN GYNECOLOGY.

By E. C. S. TALIAFERRO, M. D., Norfolk, Va.
Gynecologist, St. Vincent's Hospital.

It is not my purpose to go into a thorough discussion of all the conditions of the female

pelvis in which radium is useful, but to take up more particularly some of the types of menorrhagia, metrostaxis and cancer of the cervix and uterus.

A careful study and thorough diagnosis in each case treated is of the utmost importance. One must have a definite knowledge of the pathology of the female generative organs as well as the physiology. The surgeon must study each individual who presents herself for treatment, as a six-day flow will be normal in some while pathological in others, for some women will state that they usually menstruate three or four days, but recently they have been menstruating seven or eight days; this shows some pathological change.

There are various conditions which produce a too frequent and profuse flow, among which may be mentioned functional derangements of the genital organs without any demonstrable pathology; diseases of the generative organs with demonstrable pathology, such as malignant and benign tumors, general constitutional or systemic diseases and vascular disturbances.

Functional diseases of the genital organs depend very largely upon the over or under stimulation of the ovaries and other ductless glands of the body, for we all know that hypothyroidism is associated with menorrhagia, and on the other hand, in hyperthyroidism we have a cessation of the flow in many instances.

Circulatory disturbances produce a hyperemia of the generative organs, and this is frequently brought about by displacements and deformities, also from laceration of the cervix and tumors leading to obstruction, acute and chronic pelvic infection and constipation.

In many girls there is a profuse menstruation during the first ten years following puberty, without any demonstrable lesion. A careful analysis will show that a large proportion of these will develop fibroid or myomata in later life. Some of these girls will undoubtedly show the beginning growth of fibrous tissue in the uterus, while others have hypertrophy of the blood vessels of the uterine mucosa. It is therefore important that the gynecologist be thorough in his history and accurate in his diagnosis, so as to determine definitely the cause of the uterine flow before using radium as a therapeutic agent.

Treatment.

All cases of cancer of the cervix or uterus, when seen in the early stages, should be treated surgically. A panhysterectomy should be done; after which 50 m. g. of radium, well screened, should be applied to the vault of the vagina for twenty-four hours. In these cases I usually place the radium in an Irish potato and put this inside of a thin rubber bag: by this means I can get as near the vault as I wish, and at the same time protect the bladder and rectum. This should be repeated as often as the judgment of the operator requires.

If the patient is not seen until the cancer has developed sufficiently to open up the question whether it be operable or non-operable, it should be decided that it is inoperable, and should be treated with radium. When once treated with radium, the uterus should not be removed. The woman should receive twelve hundred m. g. hours of radium, which should be repeated in from fifteen to thirty days.

The uterus should not be removed, because radium produces a sclerosis of the lymphatic vessels which always checks metastases. There has been a great deal written in reference to the dosage of radium. Some writers advocate as much as two hundred m. g. of radium inserted in the uterus for from twelve to twenty-four hours. This amount seems to me to be too large; I very rarely use over fifty and occasionally seventy-five, as we get better results and there is less chance of destroying the underlying tissues. These large doses of radium always produce amenorrhoea, and therefore it is my custom to give these patients large doses of ovarian extract or corpus luteum, as it prevents the nervous symptoms produced by an artificial menopause.

Radium has a wonderful effect on the large cauliflower cervical cancers—they seem to melt away like magic: all the foul discharge usually disappears in about three weeks, and while it does not cure them, it gives these unfortunate individuals a period free from pain and discomfort, and they are able to be about attending their duties.

Radium is extremely useful in essential menorrhagia: that is, menorrhagia without any demonstrable pathology. Young women who present themselves for treatment for this condition, if other remedies have failed to check

the flow, should be given small doses of radium treatment. They should receive about twenty-five or fifty m. g. of radium, depending upon the case. This should be inserted into the uterus so that they should receive about two to three hundred m. g. hours. This treatment may be repeated if necessary. With this small dose of radium, there is little possibility of producing sterility, as this small dose affects more particularly the mucous membrane of the uterus, and has very little, if any, effect upon the function of the ovary. Patients treated in this manner do not cease menstruating, but the menstrual flow is diminished, and they usually become regular and normal in most instances.

In older patients in whom it is desirable to stop the menstrual flow completely, larger doses should be administered. Fifty m. g. inserted in the uterus for from twelve to twenty-four hours, as a rule, completely stop menstruation. Through the period following the use of radium the flow is generally as profuse, or even more so, than before. This is perhaps due to a hyperemia of the endometrium. These patients usually pick up and take on weight, the anemia disappears, and the patients gain strength very rapidly.

Small fibroids and myomata respond very quickly to the use of radium in many cases, but these cases should be handled surgically, rather than with radium during the child-bearing age. The reason for this is obvious, for a myomectomy may be done for the removal of the tumor without interfering with subsequent pregnancy. If a sufficient quantity of radium is used sterility will be the result.

Radium may be used in the treatment of large fibroids in that type of women who are anemic, run down from the loss of blood, and are poor surgical risks. It will stop the flow and allow them to build up, so that the tumor may be removed later. In that class of patients in which surgery is contraindicated due to debility and cardiorenal disease, radium is the treatment of choice.

Now, in conclusion, let me emphasize the following points: That early cancer of the cervix or uterus should be first treated surgically, doing a complete hysterectomy, to be followed by the use of radium. Those cases in which the cancer has developed and there is a question whether to operate or not, should be considered non-operable and treated by radium. In cases far advanced we have no therapeutic agent equal to radium. When cancer of the cervix has been once treated with radium, no surgical operation should be performed.

Dr. Stacy says that radium is the treatment of choice in:

1st. Cases of menorrhagia, of menopause not associated with large fibroid tumors, and in which the possibility of carcinoma is definitely eliminated.

2nd. Cases of menorrhagia in patients bebetween the ages of thirty-five and forty-five years, who have small sub-mucous fibroid tumors or who have no demonstrable lesions.

3rd. Cases of myomas in which there is a definite contraindication to operate.

4th. Cases of menorrhagia in the young person who has resisted all medical treatment, in which very small doses should be given.

I would further emphasize that we be careful in our diagnosis of all uterine hemorrhages; uterine scrapings should be examined of all women having menorrhagia not due to a known definite lesion. All women upon whom we produce an artificial menopause should receive 10 grs. of ovarian extract or 5 grs. of corpus luteum three times a day, so as to prevent nervous symptoms incident to menopause.

ARTIFICIAL PNEUMOTHORAX.

By C. L. HARRELL, M. D., Norfolk, Va.

When I was asked for a paper on this subject, it was with a good deal of reluctance that I accepted, knowing that so much had been written during the past few years on lung compression, that every one was tired reading about it. Then I remembered the many questions that had been asked me in the past few months concerning lung compression—how it is done and for what. I also recalled that the articles on Artificial Pneumothorax usually appeared in the journals whose circulation is limited, and are not read by the average physician, so I will give a brief description of the merits and indications in hope that it will interest a few who are not familiar with the subject.

Artificial pneumothorax, lung compression, or gas treatment for pulmonary tuberculosis, is forcing sterilized air or nitrogen gas, heated to body temperature, in the pleural cavity.

This serves to collapse the lung and keep it at rest so that nature can heal the inflamed area. It is similar to putting a fracture in a splint, but it takes a great deal longer for lung tissue to heal than it does bone. First, you cannot get a lung at absolute rest; no compression is complete. Second, you are dealing with an infection, often a mixed infection that must be overcome. Consequently, when we compress a lung we do not know how long we will have to keep the lung down—possibly from one to three years, usually about two years.

Artificial pneumothorax was first suggested by Prof. Carlo Forlaini, of Milan, Italy, in 1882. He reported his first clinical cure of an advanced case of unilateral pulmonary tuberculosis before the Italian Congress of Internal Medicine in 1895. In 1898 Murphy, of Chicago, reported 5 cases. The next year Lemke reported 53 cases treated. Forlaini used the puncture or closed method; he injected nitrogen, given through a small needle, in the pleural cavity. Murphy used the open method; he made a small incision through the skin, fascia and pleura between the ribs, inserted a small rubber tube and injected from 1200 c. c. to 4500 c. c. of nitrogen gas into the pleural cavity, and repeated the injection after 2 to 3 weeks. A few years later, Saugman added a manometer to the apparatus that was previously worked up by Lemke, Braur and others. This enabled you to determine when the needle was in the pleural cavity, and to get a pressure reading. Normally, you should have a negative pressure of 4 to 5 mm. For years nitrogen was the gas used. A few years ago some one analyzed the gas in the pleural cavity a few days after the injection and found that the composition was the same both in the lung and pleural cavity as ordinary air. Since that time many of the sanatoria have used air passed through warm bichlorid solution. It is much cheaper and more easily given, though some sanatoria still use nitrogen, claiming the injections do not have to be given so frequently.

Indications for artificial pneumothorax are, first, to control hemorrhage; second, advanced unilateral cases that are not responding to other treatment; third, advanced cases with one fairly good lung that is not responding to treatment may be given a trial. In case the good lung begins to go bad, the gas can be withdrawn. Note that I say not responding to treatment, as I believe that other measures should be given a trial first, and gas treatment, if started, should be continued from 18 months to two years in order to obtain the best results—some say three years. Fourth, abscess of lung; compression should be tried before surgical intervention, as it is less dangerous, and you get rid of the dirty dressings and foul discharge. Fifth, bronchiectasis; sixth, it was also used during the war by European surgeons to control hemorrhage after wounds of the lung.

Contraindications.—First, the patient should be easily accessible to a physician who is familiar with the work. The first few injections should be given either in a hospital or sanatorium where the patient can be watched closely and get injections as often as necessary. Second, advanced bi-lateral cases. Some operators out West have reported good results in a few bi-lateral cases by keeping one lung compressed for a while, let that one up, and compress the other, but as a rule, if there is much involvement in a lung, it will not stand up doing the work of two. Third, "Fools". One should not attempt artificial pneumothorax on persons who think they know more about their disease than you. Before attempting to give gas one should fluoroscope the chest and get stereoscopic plates if possible, so as to get a line on adhesions and pick out the clearest place to make your injection. During the treatment one should check up his work from time to time with the fluoroscope, for the physical findings are very deceiving.

Technique: With first injection, especially with nervous people, it is best to give a hypodermic of morphine about one-half an hour before the operation, to prevent pleural shock. The patient is put on the side, with the lung to be compressed on top, and a small pillow under the opposite side, with the head down, so as to separate the ribs as much as possible. Anesthetize a small area of skin, fascia and pleura, using ½ of 1% novocain. Air is collected in a large bottle, passed through warm bichlorid solution into another bottle which is elevated on its stand just above the level of the patient's chest. You have a "Y" shaped tube, on the long end is your needle; one end is connected with your manometer, the other with the bottle containing the gas. In the manometer you have a col-

ored liquid, usually water colored with ink. Some use mercury; my experience with mercury is that it is too heavy and does not oscillate well. After the skin is anesthetized, you make a small puncture through the skin and fascia with a sharp-pointed knife, insert your needle; if you are in the pleural cavity the manometer will oscillate. Sometimes a drop of water or drop of fluid from the cavity gets into the needle and prevents oscillation. In this event, have the patient clear the throat or take a slight cough, as this will often open the needle. If you are in the lung your manometer will not oscillate.

After you are sure you are in the pleural cavity, turn on the gas, 100 cc. at the time, and take a reading. Do not run a pressure higher than plus one or plus two with new cases, and preferably with old cases, unless you are sure you have adhesions and are in a pocket. A high pressure will sometimes break adhesions loose, but this is a dangerous procedure and should be practiced with care. In the beginning, one should give 200 to 300 cc. every 2 or 3 days until the lung is collapsed, then the injections can be postponed a few days each time. After patients have taken gas for 2 or 3 months, they can go from 2 to 3 weeks without a refill, but they should be examined in the meantime. If a lung once expands it usually sticks and you cannot get it down any more. It is best to keep the patient on the table for several minutes after the injection to avoid any danger of embolism. In compressing for hemorrhage, you usually put in enough gas at the first injection to stop the hemorrhage. This you can easily do, provided the lung is not bound to the chest wall with adhesions.

The following case may be of interest: Mrs. D., age 24, was diagnosed as a far-advanced case of pulmonary tuberculosis, involving entire left lung and part of right. In May, 1918, she went to a private sanatorium, but continued to do badly. In September, 1918, she was getting in very bad shape—running high temperature with cavity formation. As a last resort, her lung was compressed. She immediately began to improve, and in the spring of 1919, she was able to come home. I continued the treatment, giving an injection every 3 weeks. She developed some fluid some time during the summer, but apparently it caused no trouble. The last of September, just after a hard day's work about the house, she took a long automobile ride without a wrap and became thoroughly chilled. That night she had a chill followed by high temperature. She ran a typical septic temperature for 2 or 3 weeks and had some signs of fluid in the chest, but these were not marked. On November 5th, I aspirated the chest and got 12 ounces of dark greenish pus, refilled with air, and November 12th, I removed 36 ounces of pus. The temperature immediatery came down. I had the fluid cultured twice, but got no growth. Gradually the fluid got less and less; this I removed every 2 or 3 weeks and refilled with air. On March 11th, 1920, patient was able to come to office for treatment: had been in bed all winter. I removed 5 ounces of pus, and tried to refill with air. On pushing the needle through the pleura, which had become very tough and thickened, it broke off. I immediately took her to the X-ray room and fluoroscoped the chest; the needle was seen in the pleural cavity sticking in the chest wall. Dr. Old tried to extract it through an incision over the point of entrance, but could not find it. The next day he did a rib resection under the fluoroscope and removed the needle. He put in a tube and the wound drained very freely for 2 or 3 days, then let up; tube was removed, and within 10 days the wound had healed completely. The patient continued to improve, and was no worse off for her experience. She returned to the sanatorium and has some few ounces of pus removed from the pleural cavity every 3 or 4 weeks. The lung is bound down by adhesions and cannot re-expand. Patient was in the office a few days ago looking very well.

I have been giving gas about six years. While the number of my cases has been small—about a dozen—the most of them were treated over a long period. I have not met with any bad results or accidents except the one reported above. All cases were benefited and I believe their lives were prolonged from 2 to 4 years. Two were discharged as cured. One lady, I recall, an ex-nurse about 25 years of age, was in a private sanatorium as a far-advanced case. She had been hemorrhaging for 2 or 3 days previous to getting her first injection late at night; the bleeding was completely stopped. She expressed the belief that she would have bled to death had she

not been compressed. She remained in the sanatorium for a month, became dissatisfied and returned home, where I continued the treatment about 18 months. She was last heard from about six months ago—about 2 years after her last treatment—and was heavier than she had ever been, entirely free of symptoms, doing her own housework and anything else she wanted, including cranking and running a Ford.

Artificial pneumothorax is not a panacea for all T. B. cases, but it has worked wonders in many, and we consider it a valuable asset in the treatment of advanced pulmonary cases. Some complications arise, it is true, just as in other diseases and treatment, the chief of which is the collection of fluid in the pleural cavity. About 40 to 50% of pneumothorax cases have fluid; just why we do not know. It may be due to a mild infection carried in by the needle, constant irritation of the pleura, or infection from lung as result of trauma. It is not necessarily a bad sign, though we would rather not have it. You draw it off from time to time according to symptoms, and refill with air, the essential point being to avoid mixed infection.

In conclusion, I think it best that a lung be first compressed either in a sanatorium or a hospital, where you have the patient under constant supervision, so refills can be given as often as necessary, except in cases of emergency to control hemorrhage. After a few months the patient can return home and the treatment be continued as long as necessary.

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THE POST-OPERATIVE CARE OF THE FEMALE BLADDER.

By EDWARD T. HARGRAVE, M. D., Norfolk, Va.

A few years ago, Watkins, of Chicago, called attention to the role of distention of the bladder as a cause of post-operative cystitis, and made a plea for more frequent catheterization after operation. Howard Kelly warned against the distended bladder more than twenty-five years ago. Yet, many surgeons say, "Do not catheterize unless absolutely necessary," and not before ten or twelve hours. It is known that the bladder is able to take care of infectious organisms, when its resistance is unimpaired; but distention, trauma incident to operation, improper catheterization, lower the resistance to such an extent that infection takes place. Many cases that are allowed to go ten or twelve hours develop distention with overflow and, when the patients are finally catheterized by the usual method, infection may result. The proper interval to catheterize depends upon the nature of the operation. In the ordinary abdominal case when the bladder has not been traumatized, an eight-hour interval is advised, provided the patient does not complain of distention before that time. Patients are good judges as to when their bladders are full. If the operation was one involving trauma to the bladder, the interval should be no longer than six hours. In all plastic cases involving the anterior vaginal wall or bladder, four hours is the proper interval.

Technic. Prepare the field as for operation, using sterile drapery. Connect a sterile, well-lubricated glass catheter with an irrigator containing boric acid solution. Introduce catheter into the urethra half an inch, with the fluid flowing, and thoroughly wash out urethra. Disconnect the catheter and gently push in bladder and drain. Introduce through the catheter one ounce of any of the following germicides, and have the patient retain for at least one hour, or until the next catheterization, unless they void spontaneously—argyrol 10%, protargol 1%, mercurochrome 1%.

For a number of years I have insisted on leaving argyrol in the bladder after each catheterization and, when this has been done, I have not had a single case of cystitis to develop. Argyrol 10% is a good bactericide, non-irritating, and usually always available in any hospital. Young et al (Journal A. M. A., 11-15-19) found no growth after 5, 15 and 60 minutes, when sterile urine was inoculated with 3mm. loop of 24 hour broth culture of the bacillus coli and staphylococcus aureus, and treated with 10% argyrol. With protargol in 1% solution, they obtained a growth with S. aureus after 5, 15 and 60 minutes, but no growth with B. coli. The objection to the silver colloids is that they have no penetrating powers. But, as they are used to prevent infection, clinically I believe they are efficient. Mercurochrome 220, is considered the best antiseptic the authors have used. In 1% solution it kills the B. coli and S. aureus in one minute. It possesses remarkable penetrating

power and is equal in this respect to acriflavin, a dye also used first in genito-urinary tract in Young's clinic (Davis and Harrell, J. Urol., 2:257, 1918).

I have used both of these dyes in the treatment of cystitis, with the result that urine full of pus and bacteria will rapidly clean up and become sterile. I have not used any flavine since I have been able to procure the mercurochrome—220, for Young seems to prove that flavines are antiseptics rather than germicides, when mixed with urine.

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THE PROGNOSIS AND TREATMENT AS OBSERVED IN SIXTY-SEVEN CASES OF PNEUMONIA.*

By H. McGUIRE DOLES, M. D., Norfolk, Va.

I know of no disease to which more study has been devoted than to Pneumonia, and as yet it is heartily agreed that, in spite of all the different treatments that have been instituted, we are far from anything that we can at least call satisfactory.

In review of the records, I find that during the past two years it has been my privilege, also I may say, misfortune, to treat sixty-seven cases of pneumonia, of which fifty-six were bronchial, ten lobar, and one hypostatic, the bronchial type predominating on account of its frequency in complicating influenza, which caused a decided increase in the number of cases during the winters of 1918 and 1919. Of the sixty-seven cases seen, there were eight deaths, or a mortality of about 12%. I feel that it is unnecessary to deal with the pathology, symptomatology, and diagnosis here, as so much has been said about it that we are practically familiar with the disease from our text-book knowledge and bedside experience.

The cases in which death ensued were briefly as follows:

Case I. Mechanic, white, single, 20 years of age; seen September 5, 1918, with an acute attack of influenza. Patient responded to treatment, and temperature was normal, and felt well on the morning of the 7th. Cautioned to remain in bed seventy-two hours. However, on morning of September 8th, sat up in a cold room and wrote letters. Called to see him again that afternoon. At that time temperature was 103.6°: respiration 24; pulse 120. Moist rales at the angle of the left scapula; moderate amount of cough. Systolic B. P. 130, D. 90. Leucocytes 14,600; Polys 87%; Lymphs 10%; Large Mononuclears 3%. On the morning of the ninth there was a marked double bronchial pneumonia, and that afternoon pulse rate went to 130, temperature 102, respiration 40. On the 10th, cyanosis appeared and the pulse became so rapid that it could no longer be accurately counted; S. P. fell to 110, D. P. to 80. Patient became unconscious that night and died at 4 P. M. on the 11th.

Case II. Female, 38 years of age, delivered of child first time by a physician. Had been complaining for past week, but husband neglected to call a physician until labor set in. At that time patient had advanced bronchial pneumonia. Child born September 21st, at 6 A. M. Mother became cyanotic a very few hours after delivery and died at 4 A. M., September 22nd. Practically no time was given to check up the patient.

Case III. Housewife, 27 years of age, 8 months pregnant. Seen October 20th. Influenza. Developed bronchial pneumonia the 22nd. Leucocytes 12,400: Polys 91%, Lymphs 6%; Large Mononuclears 2%; Eosinophiles 1%. Systolic B. P. 130, D. 80. Pulse 124; respiration 28; temperature 102.4. Removed to hospital same date. That night pulse went to 140, and patient miscarried on evening of October 23rd. Could not ascertain pulse rate by 12 that night. Patient showed beginning cyanosis. Pulmonic second sound very weak. Morning of the 24th patient was very blue and spitting bloody sputum. S. P. 110, D. P. could not be read accurately, there was practically an absence of the pulmonic second sound. Patient died at 12:30 P. M. that day.

Case IV. Female age 38, seen January 3rd, with influenza. Developed bronchial pneumonia January 5th. B. P. S. 130, D. P. 100. Leucocytes 13,800: Polys 87%: Lymphs 9%: Large Mon. 4%. Urine—moderate amount of albumen, hyaline and granular casts. Pulse rate 132; respiration 34; temperature 104. On night of the 6th, patient developed an opisthotonos and what further appeared to be meningitis. Spinal fluid was not taken, as patient died at 6 A. M., morning of the 7th.

Case V. Baby, 3 years of age, developed bronchial pneumonia, secondary to measles, May 5th, 1919. L. and D. not obtained. After the fourth day of pneumonia patient died.

*Read before the Norfolk County Medical Society, June 21, 1920.

Case VI. Female, 33 years of age, for the past three years had a marked aortic and mitral stenosis, with hypertrophy and dilatation. Confined to bed 11 A. M., February 14th. Seen that afternoon, at which time there was a marked amount of moisture throughout both lungs. Pulse 130; respiration 32; temperature 104.6; B. P. S. 110; D. 60. Morning of the 15th, temperature 100, pulse around 140. Leucocytes 10,400; Polys 90%; Lymphs 6; Large Mon. 2; Eosinophiles 1; Mass cells 1. By 12 A. M. became markedly cyanotic. Pulmonic second sound was hardly audible; both lungs appeared to be completely consolidated. Patient died that night at 9 P. M.

Case VII. Telephone linesman, married, 27 years of age, family and past history negative. Seen at home April 19th, with what appeared to be an acute influenza; with the exception of slight bronchitis, lungs appeared to be clear. Pulse 104, temperature 102.4, respiration 18. On the 21st developed bronchial pneumonia. Temperature 103; respiration 30; pulse 118; S. B. P. 120; D. P. 80. Leucocytes 14,800; Polys 89; Lymphs 6; Large Mon. 5. On May 22nd, pulse 134, respiration 36. Pulmonic second sound appeared to be slightly weaker. Cyanosis appeared that night and patient began to expectorate blood-streaked sputum. On the morning following, was very blue and pulse could not be counted. S. P. between 120 and 130. That night became unconscious and died at 7 A. M. the next morning.

Case VIII. Female of 76 years was burned severely on legs and back, January 18, 1920. Placed in hospital January 20th, and apparently did nicely until the 23rd when, in spite of frequent change of position, developed a hypostatic pneumonia. Pulse 120; respiration 28; temperature 103.4. Leucocytes 12,800; Polys 85; Lymphs 10; Large Mon. 4; Eosinophiles 1. Urine showed large amount of albumen and numbers of hyaline and granular casts. B. P. S. 150; D. P. 110. On the morning of the 24th, pulse 140, S. B. P. 140, D. P. 100. The pulmonic sound appeared to be very weak. That night the patient became unconscious and the pulse rate was so fast that it could not be counted. Died after lingering until 2 A. M. the 26th.

The reason for making a brief report in which death resulted is for two purposes. You will note in all cases that there was a fall in pressure as the pulse rate went up; further, the leucocyte count was low while the poly was exceedingly high. The pulmonic second sound always warned us of the gravity of the patient's condition. Secondly, with the exception of cases one and seven all pneumonias were complicated by somewhat unusual conditions, which undoubtedly contributed largely to the rapid deaths.

The prognosis in pneumonia depends entirely upon our ability to keep the heart going. If we are able to aid the heart in withstanding the extra work imposed upon it until the pneumonia resolves, our patient will live; however, if the pneumonia outlasts the heart, death takes place.

To my mind, the blood pressure, blood findings, the intensity of the second pulmonic sound, are the three most important factors. Gibson's rule, that is, when the systolic pressure curve expressed in millimeters of mercury is lower than the rapidity of the pulse curve representing the frequency per minute, an unfavorable result may be apprehended.

Those cases where the leucocytes are low with a high poly count, should always give us concern.

Where we find with an advanced pneumonia, a second pulmonic sound growing weak, it is always indicative of a dilatation of the right heart, which is practically always fatal.

The treatment consists in keeping the heart going, as up to this time no serum or vaccine seems to counteract the disease. It is true that in some cases, after serums or vaccines have been administered, crises have been noted within 24 hours with recovery. But I have also seen the same results following large doses of Dover's powders and counter-irritation and, in view of such, after watching a series of cases where serum was administered, I cannot but feel that our crisis was more of a coincident with the administration of the drug or serum rather than the action of either. Hence, in the face of such evidence, it seems to me that, until some treatment is found which gives much better results than any now at hand, we will find our mortality will be lower if our attention is devoted to the circulatory system rather than the pneumonia itself.

As soon as the diagnosis of pneumonia is made, the patient should at once be placed on a porch, if possible, or in a well-ventilated room with sufficient clothing to prevent chilli-

ness or discomfort. Blood pressure should be ascertained twice daily, L. and D. daily, and a careful study made of the heart's action, particularly the second pulmonic valve because, as stated above, it is one of three danger signals. The usual routine urinalysis should be made. Diet should consist of any food the patient does not have to masticate, as the act of mastication is exhausting in itself. Use ice cap for temperature of 101 plus and give attention to the gastrointestinal tract—the amount of fluids taken in and excreted. Whether counter-irritation and expectorants are of value is difficult eo say. However, if no result is obtained before the stage of consolidation, none is to be expected, and it seems best to stop them, as all such drugs have a tendency to produce nausea, which is about the last thing we care to have. It is on the above facts that the treatment is based. The question of what stimulants should be used and at what time they should be started has always given us concern. However, of the numerous drugs used there seem to be only three that have proven themselves reliable, namely, tinct. of digitalis, morphine sulphate, and adrenalin hydrochloride.

The longer stimulation can be withheld in reason, the better are our chances for results when we resort to it, although we will possibly have to rely to a large extent on guesswork as to the best time to begin stimulation. I believe an increase of forty in the normal pulse rate, and where a slight fibrillation is noted seems to be about the best time. It is from this stage on that all of our wits are brought into play. The patient is usually coughing, irritable, nervous, and possibly in pain. Here morphine given in grs. ¼, atropine, gr. 1-150, q. 4 h. or p. r. n., seems to be invalnable. It relieves the coughing, pain, and nervousness, and usually causes a complete relaxation of the patient and also adds its mite to stimulating the heart, thus naturally relieving the heart of an untold amount of overwork.

Of the direct heart stimulants, tinct. of digitalis seems to be easily the most reliable and certainly, to me, the most logical. Strychnine, sparteine sulphate, strophanthus, caffeine, sodium benzoate, ether, alcohol, aromatic spirits of ammonia, and many others of less importance, all accelerate heart action, which is what we are trying to get away from. An accelerated heart soon wears out; on the other hand, death from a slow heart is rare indeed.

Tinct. of digitalis, or preferably digitol, should be given from 40 min. to drachm doses. It slows the heart's action, produces a regular rhythm, adding materially to the force of each beat. From such doses, although somewhat large, I have never seen any ill results.

The blood pressure should be constantly borne in mind and be maintained by adrenalin hydrochloride, min. 15 to 20, q. 4 h.,—often an invaluable procedure. I have seen a falling pressure raised ten points, with a drop in pulse rate of 12 to 20 beats in 12 hours, with adrenalin and digitalis alternating q. 4 h.

In conclusion, I may say that I realize that this paper is subject to a great deal of criticism on the stand taken against the use of the vaccines and serums now in use. However, I believe that if a close record of the cases that received the serum and vaccine treatment, and where a large dependence was placed in this form of therapy, is compared with a record of those which received a strictly medical treatment, we will find the mortality larger in the more modern form of treatment. I do not wish my view to be misunderstood, as I believe at a later day a serum or vaccine will be given us which will control pneumonia as antitoxin does diphtheria today. But, from my limited observation of the serums in use today, it seems that a treatment of the disease, on a scientific basis with the drugs mentioned above, will be much more satisfactory to the doctor, and certainly to the patient in the end.

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THE DIAGNOSIS OF CONDITIONS OBTAINING DURING NORMAL LABOR, WITHOUT VAGINAL EXAMINATIONS.

By BURNLEY LANKFORD, M. D., Norfolk, Va.

There are several reasons for obtaining the information needed during the course of labor by other means than through vaginal examinations. First and foremost of these is the prevention of puerperal infection, and as minor reasons, may be mentioned the convenience of the obstetrician, and nurse, and the lessened inconvenience to the patient. Sepsis, probably, can never be fully controlled, be-

cause in a certain proportion of women auto-infection will be the cause. It is more than probable, however, that a far greater number of women are infected by organisms carried in on fingers or instruments. To advocate a means that will help prevent such infection, is the reason for this paper.

For many years, the few pioneers in medical thought believed and taught that puerperal sepsis, then known as child-bed fever, was contagious and due to some extraneous matter carried to a woman. They were only the few, however, and were unable to obtain the following of the profession at large. Even so great a thinker and clear a writer as Oliver Wendell Holmes was made fun of and even sneered at by some when, in 1843, he published a paper in Boston on "Contagiousness of Puerperal Fever." Four years after this, Semmelweiss, convinced of the contagiousness of puerperal fever and the method of transmission, instituted in his clinics certain restrictions in vaginal examinations by students that at once caused a very marked fall in the incidence of such infection. The work of these two great men was for the enlightenment only of the few, until the time of "Listerism," when in 1870 Sir Joseph Lister introduced antiseptic methods in surgery, and the wave of advance in surgery lapped over considerably into obstetrics, whereat the scoffers began to realize that Holmes was not such a fool after all!

Even in our day, the process of labor is not looked upon as essentially a surgical procedure; not by the public at large, not by the army of midwives who deliver in the aggregate far more women than the medical profession, and not seriously by the main body of the medical profession itself. The reason for the last statement is the fact that the mortality and morbidity rates remain almost the same that they were in 1860, ten years before the profession at large was familiar with the bacteriological origin of disease.

Victor Bonney, of London, published in The Lancet last year, a paper in which he states that in the registration areas of 15 foreign countries, only five of them showed any appreciable diminution in the death rate from puerperal infection within recent years, and in those five it was approximately only one per cent. The reports from the Department of Labor of the U. S for 1917 showed no definite decrease in the death rate from child bearing, in our own registration areas and, in this country as in Europe, puerperal sepsis heads the list of the causes of death among pregnant women. Sepsis more than doubles any of the other three main causes of death in such cases, namely, toxemias, hemorrhage and embolism. Bonney very tersely says, "Not much more than a bowl of antiseptic solution stands between the obstetric practice of today and that of the sixties." The reduction of mortality in well conducted lying-in hospitals has been great, whereas in the days preceding antiseptic surgery, it was far more dangerous for a woman to be confined in a hospital than in her home. Why this difference? Because, in a well conducted hospital, the obstetric woman is looked upon as a major operative risk, and precautions are taken accordingly. Even so late as the time when I began the practice of medicine, there lived in this city a man of large talents who had spent a long and useful medical life, who used to say that he washed his hands when he went to a labor case; yes, but it was after delivery!

Infections are extrinsic and intrinsic; extrinsic are those which are carried from one patient to another, or from outside sources to the patient; intrinsic are those carried in from the patient's person, or dwelling already within the patient. Extrinsic infections can be absolutely controlled by the careful use of gloves aided by constant watchfulness in the effort to keep our hands clear of infectious matter. The intrinsic can be largely controlled by a careful and antiseptic technic. The extrinsic, or patient to patient, infections have been almost abolished in carefully conducted institutions; the intrinsic still occur in them and in private pratice.

This paper does not attempt to take up the question of reduction of maternal mortality further than the help to be gained towards that end by the doing away with vaginal examinations. The mortality and morbidity rates are still great enough among post-partum women to make every man who does obstetrics look carefully into his methods. It would undoubtedly reduce this mortality rate if every man who does obstetrics would determine to so perfect his technic that each case of labor could be conducted without vaginal examination. By this means we can at once get rid of one of the chief sources of infection. I do

not mean that a vaginal examination may not be occasionally required, nor that all infections come from such examinations. It is, of course, true that a number of infections will always take place; we cannot hope to entirely eliminate them. A sleeping salpingitis may flare up as a result of trauma during labor; a crowd of gonococci from Skene's or Bartholin's glands may take this time, of what we call weakened resistance, to ungratefully attack the hostess who may have sheltered them for many months. Streptococci, or some of the colon group may have been introduced shortly before labor by douche points, tub baths, diarrhoea, or even by that male organ, which in the erect state is said to respect nothing. There is no area on the body more alive and swarming with bacteria than the vulva and perineum. It is over and through this germ-ladened area, then, that vaginal examinations have to be made and, no matter how carefully we make them, there is, in the aggregate, a decided risk—a risk that we may largely eliminate if we can develop a technic that will do away with the necessity for such examinations as a routine.

It is possible in most (though not in all) cases to obtain the information we need throughout the course of labor by means of abdominal and rectal examinations. These may be made with only ordinary cleanliness and without attempting asepsis. It is essential that the hands be warm and that palpation should be gentle, particularly at first, and that it be practiced between pains. Rough and rapid palpation will set up defensive reactions on the part of both the patient and her abdominal muscles and will go far to defeat the desired end.

In order to make abdominal examinations most helpful it is well to have a regular definite method and to follow it in all cases. In endeavoring to locate the position of the child accurately, the first step should be to determine in which side of the abdomen the greater part of the child lies. De Lee's method of doing this seems the simplest and best. He divides the space around the umbilicus into two right angle triangles, their bases opposed and along the mid-line, umbilicus in the center of base line, and presses in these triangles with the ends of fingers of both hands straight down towards the mother's back. The fingers in one triangle will meet with much greater resistance than the fingers in the other triangle, the foetus, of course, being on the side of the greater resistance. This gives a lead also for finding the back, which is next located as a hard, smooth, rounded body giving a sense of decided resistance to the palpating hand, the palmar surface of the fingers now being used. Having located the back, it is reasonably certain that the small parts will be on the opposite side of the abdomen, but in order to make sure we can palpate where we think the small parts are or should be, and, in not a few cases, we will find that we were mistaken in the first location of the back. It is well, then, to prove each step. Should the back be found well towards the mother's front, that is, near the mid-line, it is reasonably certain that the child is in an anterior position, right or left, as the case may be. On the other hand, should the back be well down in the mother's flank, presumably the position is a posterior one. To again prove out the problem by the small parts, when the child's back is well to the mother's front near the mid-line, the small parts should be found well down in the flank of the opposite side, and when the child's back is well down in the mother's flank, the small parts should be found easily, and well to the front, on the opposite side. The back and small parts having been satisfactorily located, the next step should be to look for the head, below, and this can be done by means of one hand or both hands. Should one hand be used, we face the mother and seek to grasp the head between thumb and fingers pressed steadily, firmly and slowly downward into the woman's abdomen, just above the symphysis. At the beginning of labor, the head can nearly always be quite definitely made out in this location, and in any event we should seek to prove *this* step by palpating for the head above and noting its absence there. Having found back, small parts and head, the next thing we want to know is whether the head is flexed or not, and this can usually be done by locating the cephalic prominence. When the head sinks into the pelvis, normally it is flexed, the chin being well down upon the chest, the back of the child's head and its back forming a slight angle. When this is the case, by palpating with both hands (the examiner facing now towards the mother's feet), using firm but deep pressure just behind the symphysis, the

finger tips of one hand are found to go down into the pelvis more easily than those of the other, which meets with more resistance. This resistance is found to be a hard body and is caused by the cephalic prominence which is usually the brow or the face of the flexed head. The cephalic prominence should always be on the same side of the mother's abdomen as the small parts. In only one position is this not true, and that is in a face case where the head comes down in extension, rather than in flexion. The degree of descent of the head can be found from time to time by using the same manoeuver just described in locating the cephalic prominence. Having located the different parts of the foetus with reasonable accuracy, some help may be obtained, merely confirmatory, however, by locating the foetal heart. It will not do to depend upon this sign too strongly, as in my experience it has often been found misleading. Not infrequently the foetal heart will have been heard best in the R. O. A. position, when the course of the labor proved that the position was a left one. and also, it is not unusual to hear the foetal heart best on a line above the umbilicus in other than breech cases.

After a careful abdominal palpation and auscultation, if we have been able to satisfy ourselves of the position, what else do we need to know? Chiefly the degree of dilatation, whether the membranes have ruptured or not, and to exclude a possible prolapse of the cord. The degree of dilatation we can discover in a large percentage of cases by rectal examination. The patient should be told that a rectal examination is to be made, as some women will think we have made a mistake and entered the wrong opening. She will be too much embarrassed to tell you so. but will tell all her friends of your mistake at some later period. This is a practical and not a theoretical warning, as I have known just such criticism to occur. In making a rectal examination, if we bear in mind what we are feeling for and that we have to feel it through the bowel wall, a partition that is not very thick, it will become increasingly less difficult as we perfect our sense of touch for that one thing. By means of this we can learn whether the cervix has been obliterated or not and how much the os is dilated. Often we can tell whether the membranes have been ruptured or not, and in some cases we can make out the fontanelles; in not a few cases the sutures can be felt and followed. The progress of the head in its downward course can be determined in all cases. A breech presentation can be diagnosed by this touch and a prolapsed cord, if we are on the lookout for such a possibility.

Occasionally we have to deliver a woman with a very fat abdomen, or one who does not seem able to relax her abdomen, and we have to acknowledge that, literally, we cannot tell *heads from tails* by abdominal palpation! In such a case the rectal examination should be made all the more carefully (and frequently if necessary) in order to obtain, if possible, the information we need to conduct a normal case without vaginal examinations, which is the burden of this paper. For rectal examinations, finger cots may be used and thrown away, or a separate glove, so marked and cared for that it cannot be used for a vaginal examination. When a vaginal examination becomes necessary, such as in the application of forceps, the exclusion of a placenta previa, the removal (manual) of an adherent placenta, we should approach such an examination with the same degree of care that we would a clean wound, because that is essentially what the woman will have, after delivery. The combination of antisepsis with asepsis should go hand in hand and the value of antisepsis should be stressed, because it is a very difficult thing to conduct an aseptic technique, particularly in a home. On the other hand, it is a dangerous thing to depend entirely upon antiseptics in the conduct of a labor case. All that surrounds the genital tract, the patient's skin, her linen, our gowns, should be aseptic so far as it is possible to make them. Some one has said that "an unassisted labor is an operation that the pregnant woman performs on herself." The wounds are self-inflicted, but they are there. We may look upon the puerperium, then, as the time of healing, and the environment should be made the same that is proper for the healing of any other clean wound.

Not until labor is looked upon as a major operation, and all contacts with the labor area made as carefully as contacts with any other surface of the body prepared for a clean operation, will the general mortality from puerperal sepsis throughout the world be markedly lowered.

530 *Shirley Avenue.*

THERE IS NOT ONLY A DISEASE WHICH HAS THE PATIENT BUT A PATIENT WHO HAS THE DISEASE.

By WILLIS WILSON SILVESTER, M. D., Norfolk, Va.

The above statement was one that I heard recently in an address, and the impression it made upon me was so strong that it becomes more deeply imbedded each time it re-occurs to my mind.

"A *disease* has the patient." I dare say this is the portion of the quotation that is uppermost in the mind of the average one of us as a rule, when studying our patients. It is a subject of which we read in every medical and surgical journal, as well as hear discussed at all of our societies.

"A disease which has the patient." The only possible means of arriving at a correct diagnosis of this disease is by attention to detail; detail in art as well as detail in science. Let us ask ourselves this question: Why is this or that man called in as a consultant? Why can not I diagnose this vague condition as well as he? On asking ourselves these questions we are apt to find that the difference between ourselves and the man we call in consultation is that the consultant has formed the habit of (1) history taking; (2) thorough physical examinations; and (3) routine laboratory examinations. He cannot be too careful in taking and recording the history of his case. He will examine not only the part complained of, but he goes over the patient's entire system *every* time, and uses his mental faculties while going over it. The careful physician, chancing on an abdominal lesion, does not forget that some other organ may be the source of the actual trouble, or an important complicating condition. As one of the foremost men in the profession puts it, "Although I have devoted myself to the study of diseases of the chest—a so-called specialty—for more than twenty years, experience has led me to see that such a thing as a medical specialty in the accepted sense cannot exist. Diseases cannot be divided into those of this or that organ, for the human body is a unit. One part cannot be diseased without affecting the other parts. No organ can be understood except in its relationship to other organs, and to the body as a whole." With this in mind we are brought to the third stepping-stone of our diagnosis.

It was not more than thirty years ago that the clinical laboratory was established. Small wonder that men educated before that time still practice medicine without the aid of the most valuable laboratory tests. Still less wonder that men educated more recently, accurately trained in these methods, returning home and associating with their elders for a long time, look upon the laboratory as a frill, and on the old methods as those to be followed. But just as surely as the examination of the urine by inspection has been superseded by chemical and microscopic methods, so far has laboratory help become a necessity in the final diagnosis and prognosis of certain conditions. Our consultant will make urinalysis a matter of routine, he will find his blood counts often a deciding factor in the case, he will not hesitate to apply the more elaborate tests as they are indicated. He does not forget, however, that laboratory work, accurately done, is an aid of first importance, but it can rarely be depended upon alone in making his diagnosis. Any one can make a diagnosis of nephritis if the patient has anasarca, albumin in the urine and many tube casts, but the time to have made the diagnosis was long before these symptoms appeared. Negative findings are not proof that the elements in question are not present; just as a negative Wassermann does not necessarily mean that the patient does not have syphilis, or the fact that the Roentgen plate does not show gallstones does not eliminate them from among the possibilities. But the man does not live who can guess at conditions and not sooner or later make a mistake, who can persist in snap diagnoses and not frequently have them fall down. We are all impressed with the truth of the adage that in the profession of medicine one must, if he loves his work, always remain a student and use his student's lamp.

"But there is a *patient* who has a disease." The second half of the quotation is a matter upon which considerable stress has indeed been laid, yet it cannot be brought before the profession any too often.

In medicine, pure science is not the whole consideration. Science in all of its branches can go forward. In medicine we shall continue to progress in all branches but one, and in this we shall never be able to excel our fathers. It lies in the humane treatment of

our sick. The kindly courtesy they taught us to show, regardless of caste or creed, is by far the best policy for us to pursue. It will gain confidence where faultless technique may fail. Let us not be so taken up with our scientific progress that we cannot devote a few minutes to cheer and sympathize with our patient. The man who can put himself in his patient's place will rarely go wrong. Put the question to yourself, "Would I stop here if I were the patient? Have I left something undone that I would wish done if I were he? Some little thing other than from a standpoint of investigating his disease, something other than a pill or liquid, something that may help to relieve a mental tension as well as a bodily ache?" To give a man the personal attention that you would show for those nearest to you, is to insure for yourself fewer restless nights, unless the dollar is your guiding star.

A medical degree and a license to practice were never intended to deprive citizens of their money without giving service in return. In this connection we are reminded that the average individual does not object to paying for services rendered. It behooves us, then, to render service. Many cannot afford to pay what we consider our services worth. Nevertheless, these people must be taken care of. As a profession we are not fond of thinking of ourselves as business men, but in giving these people the aid of a skilled laborer in our chosen field, we may remind them that there are no union hours and no fixed wage scale in the profession of medicine. In studying any new case the probabilities are that you have derived benefits of incalculable value to yourseelf, and the patient as well. A doctor can decline to assume charge of a patient, he may refer him to others, but if he does take the patient under his care, he should give the case his most thoughtful attention.

The country has such need of every well-trained, conscientious physician that success cannot fail to lie before the man whose technical skill touches elbows with the simple virtues of daily living; who is honest, who is unselfish, who is generous to those who need his generosity, and never too busy to be kind. He cultivates "that only ambition that can never become a vice—to excel others in doing good."

The psychic effect of such treatment may at times be more beneficent than any drug. The psychic control with which the body of man is endowed is above and capable of influencing the nerve control. Just as the reflex is the basis of nerve control, so the *idea* is the basis of the psychic control; and as normal function on the part of the nervous system is essential to physical equilibrium, so are normal trends of thought vital to a mental or psychical equilibrium. As the action of the body depends upon the reflex, or the reactions of the physical man to outward stimuli, so man's conduct results largely from his psychological reaction toward his surroundings.

We all have patients whom we do not care to treat because they refuse to listen and adhere to our admonitions. A firm and positive attitude is essential to beneficial results, but we must remember that it is a diseased and not a normal individual who resists, and as improvement takes place they are naturally more amenable to reason. To modify dictates of routine and treatment at first is to pave the way for restrictions that we could not have thought of applying earlier.

At times suggestions are better than statements. I recently had a patient who required both a day and a night nurse. The patient adored the first nurse and was readily controlled by her. When the sick woman longed for forbidden things, the request was tactfully turned aside, perhaps by suggesting that she wait until the doctor came, and ask him about it. The second nurse was disliked by the patient—why? Because her answer to the plea was simply, "No, you cannot have it." The effect upon the psychic system reacting upon the nervous system did not tend toward improvement of the patient's general condition, while the influence of the other's tactful consideration was most beneficial. I mention this striking instance to show how the psychic forces predominate over the nerve control. The same effect is quite as simply illustrated in the statement made so many times by the doctor, when it is unnecessary, "There is no hope." Guard your prognosis.

We are all human and make our errors, but if the above be kept in mind and borne out in practice, those of us who have a conscience that is on the job will find our sleep broken by fewer apprehensions. Each of us has a conscience; do not let that conscience become sclerosed. One of the deepest spiritual benefits following in the train of the great war lies

in our awakened sense of collective responsibility. Every man has become his brother's keeper, his helper rather than his mentor or judge. No man has attained to this responsible state in a higher degree than he whom tradition has always selected as his brother's most disinterested keeper—the physician. To-day our collective responsibility has a very wide horizon—let us view it at every point if we can.

Wibiography.

1.—Penna. Med. Jour., August, 1919. "Laboratory Methods, Their Value and Practicability in General Medicine", by M. Howard Fussell.
2.—Penna. Med. Jour., March, 1920. "Our New Responsibilities", by David Reisman.
3.—Medical Clinics of North America, March, 1920. "Ethics, Ideals and Efficiency in the Practice of Medicine", by E. J. G. Beardsley.
4.—"Symptoms of Visceral Disease", by Pottenger.

Taylor Building.

LARYNGEAL STENOSIS.*

By L. T. ROYSTER, M. D., Norfolk, Va.

Laryngeal stenosis is one of the most tragic situations known to medicine; its relief by intubation is as satisfactory as it is dramatic. There are a number of causes of difficult or obstructed breathing, resembling, to the casual observer, very closely the clinical picture of laryngeal stenosis, and from which this condition must often be differentiated. Those most frequently encountered are: post- or retro-pharyngeal abscess, peritonsillar abscess, foreign body in the larynx or trachea and edema of the glottis. The diagnosis from retro-pharyngeal abscess is especially important, since in the latter condition the separation of the jaws by the mouth gag is often followed by immediate death.

This paper will deal entirely with membranous croup or laryngeal diphtheria, and its treatment by means of the intubation tube. There are four conditions which may call for intubation:

1. Catarrhal or spasmodic croup;
2. Influenzal croup;
3. Membranous croup or laryngeal diphtheria;
4. Edema of the glottis.

1. *Catarrhal or spasmodic croup* usually comes on at night, most often near midnight; is usually accompanied by a high-pitched, ringing, harsh metallic cough. It comes on suddenly as a rule and ends as abruptly as it appears, with the approach of day. It has a tendency to recur for three successive nights, but during the day is generally unnoticeable. There are some children who are "subject" to this form of croup, having it with every slight cold or with any sudden variation in weather, or after over-eating, in which instance it takes the place of a digestive upset. Unfortunately, catarrhal croup does not invariably clear up during the day, but may persist and produce a continued hoarseness and stenosis, which is so severe as to require intubation. I have never seen an instance of this, but it is said by many excellent observers to occur. The nearest approach to it, which has come to my attention, was in a case of measles. This child required the closest observation for about ten days, during which it was thought, from hour to hour, that an intubation might be required. During the past winter this child developed influenza during the convalescence from chickenpox. She again developed a severe stenosis.

2. *Influenzal croup.* This condition, though observed many years ago, has come into prominence during the recent epidemic of influenza, particularly through the writings of Lynah, of New York. He mentions several types which it is not necessary to describe here. These cases occur during an attack of influenza, and develop quite suddenly. If intubation is needed, it is needed very early in the course of the croup. They are frequently intermittent and are very spasmodic. They may be so severe one minute as to almost call for immediate intubation, while the next minute the patient may be resting quite comfortably. Some of these cases, however, pursue the usual course of laryngeal diphtheria, and gradually increase in severity, but in a much shorter time than in diphtheritic croup, and finally require intubation.

There is only one method of diagnosis, and that is by means of the laryngo-tracheoscope. This cannot well be used except in a hospital especially equipped; and as far as treatment is concerned, matters little beyond the necessity for the exhibition of the antitoxin. I am quite sure that one or more of my cases of the past winter was of this type, though I have no way of proving it. One of these cases developed quite suddenly about midnight in

*Read before the Medical Society of the State of North Carolina, April 21, 1920.

a child which had had a severe cold for several days. By ten o'clock the next morning it needed intubating. This child died of bilateral pneumonia at 10 P. M. the same night.

3. *Laryngeal diphtheria.* There are two forms of this condition, primary and secondary.

Primary laryngeal diphtheria is, as its name implies, of primary laryngeal origin; that is, not following or secondary to a faucial infection. There is no visible membrane, and a positive culture is rarely obtainable, because of the difficulty of getting into the larynx with an applicator. This diagnosis, therefore, must rest entirely on the symptomatology and clinical course of the disease. This form comes on gradually, irrespective of the time of day or night; the child is only slightly hoarse at first, but this hoarseness gradually increases in severity in the course of one to three or four days until labored respiration sets in with marked retraction of supra-sternal and epigastric spaces, as well as the intercostal spaces. Finally, marked cyanosis occurs, which gives way to an ashy appearance which immediately precedes death from suffocation. This is the course of untreated cases. This type is rarely as septic as the faucial or the mixed cases. The reason for this is that the larynx is poorly supplied with lymphatics. We should never be fooled by the absence of faucial membrane, and should never wait for a positive culture, when dealing with this type.

Secondary cases are those which follow or are secondary to a faucial infection, or are concurrent with such an infection. They are apt to be very septic, and require most energetic treatment in order to save them.

4. *Edema of the glottis* may develop in the course of any disease, especially, acute nephritis, or arachitii bronchitis (Jackson), or from food idiosyncrasy, such as egg albumin. This edema may be severe enough to require intubation.

Incidence of laryngeal diphtheria. In this vicinity (Norfolk, Va.), as a rule the largest number of cases occur from January 1st to April 1st, and the number of cases is rarely in proportion to the number of cases of diphtheria in the community at the time. This year the conditions have changed, and I had performed ten intubations before Christmas (four since). During twenty years of private practice I have averaged about ten each winter. By far the larger number of cases occur among the poorer people, but a fair number occur among the well-to-do.

Responsibility. In a large number of cases the parents rarely think the child has anything more than a severe cold for several days, a physician often being called when the child is breathing with great difficulty and is quite cyanosed. But this is by no means always the case. Physicians themselves have a large share in the responsibility in death from membranous croup. More cases have come to my attention in which the physician failed to recognize the condition, than those in which he was called too late. Physicians are not careful enough in treating sore thoats. It is absolutely essential to take a culture of every throat which shows a patch, regardless of its size or location, and not say that a child has a tonsillitis merely from inspection. In almost every case of secondary laryngeal diphtheria which has come to me for traetment, the physician has assumed that he was dealing with a tonsillitis, without ever having taken a culture. As for the primary laryngeal cases, there is only one absolutely safe rule to follow; every case of croup which comes on during the day, and every case which comes on at night, and which does not clear up during the day, should have antitoxin. If this rule were followed, intubation would rarely be performed.

Age of occurrence. The vast majority of cases of membranous croup come on between the first and fourth years; occasionally, however, one sees a nursing infant which has to be intubated. My youngest case occurred during the past winter, when I intubated a 2-months' old nursing infant, which was well advanced in labored breathing, having been stenosed for three days. This infant coughed up strips of membrane, which, however, showed no diphtheria bacilli on culture. The child did poorly all through the tube period (6 days) and died of pneumonia eight hours after extubation.

Indications for operation. By far the larger number of cases which come to the operator for intubation, come late in the course of the disease—many of them so late that it is with difficulty they are saved at all. A number are not saved because of needless delay in intubating. When the supra-sternal and epigas-

tric spaces are retracting, showing that the child is laboring for breath, and bringing into play the accessory muscles of respiration, and the pulse is becoming rapid, intubation should be performed without delay. When the intercostal spaces are retracting with inspiration the child is in imminent danger, and when there is cyanosis the case is desperate indeed. The danger in these cases is rarely from the septic condition, but rather from the strain that labored respiration puts on a heart whose muscle fibers are already affected by a disease which has a special predilection for this particular muscle. The longer the stenosis lasts without relief, the more rapid and thready the pulse becomes, and the more hazardous the convalescent period, with consequent death in many cases after the stenosis has been relieved by a tube.

It is far better to intubate early—even unnecessarily—than to wait too long. Extubation, as a rule, is performed on the fifth or sixth day. Not infrequently the tube must be replaced within a half hour, while occasionally it is expelled by coughing at about the right time without needing re-intubation.

The operation. When urgently needed, the more expeditiously the intubation is done, the better for the child since, while introducing the tube, there is necessarily a short period during which all air is shut off. Perfect success in this operation can only be obtained by one with considerable experience. I was much amused when asked once by a physician if I did not think it was better to do a tracheotomy than to make eight or ten attempts at an intubation. The reply was, that any one who had to make so many efforts was not sufficiently skilled to attempt it at all. As a rule, from the time the gag is placed in the mouth to the time the tube is in place, the obturator withdrawn, and the gag removed, should require about ten seconds. Rarely should it be necessary to make a second attempt.

Dr. Joseph O'Dwyer, the inventor of the tube, always required his students to intubate one hundred times on the cadaver before attempting the operation on a living child.

Extubation is far more difficult than intubation. It is particularly difficult when it must be done to relieve a stopped tube. When removing tube at the expiration of the needed time of its stay, we may take our time and be deliberate.

The instrument. There is only one type of tube, introducer and extubator which is perfectly adapted to this work, and that is the O'Dwyer type, made only by George Ermold in New York. There have been many imitations, but there is only one genuine. In the selection of a tube it is essential to choose the right size; not so small that it will be easily coughed up, and not so large that it will overstretch the larynx, and thereby cause irreparable injury. This error may also result in the child's having to wear a tube for a long period, if not indefinitely.

The care of cases. No class of case holds the operator on duty more closely than do intubation cases. He must never be so far away that he cannot be reached within a few minutes. These cases are essentially hospital cases, and require the service of a nurse especially trained. Now that the city of Norfolk has a Contagious Hospital, with proper facilities for handling intubation work, I require all such cases to be transferred to the hospital, although I must say that I have done some of my best work in this line, not only in the private homes of the poorer classes, with and without a nurse, but even many miles in the country, where I saw the patient only at the time of intubation. In one of these cases the tube was coughed up in a accommodating manner four or five days later, I eventually receiving it by mail.

THE AMERICAN COLLEGE OF SURGEONS.*

By SOUTHGATE LEIGH, M. D., F. A. C. S.,
Norfolk, Va.
Visiting Surgeon and Gynecologist, Sarah Leigh Hospital and Clinic.

There seems to be so general a misunderstanding in regard to the organization, work and aspirations of the American College of Surgeons, that it has appeared to the writer to be wise to discuss the matter frankly before this Society. He wishes, however, at the outset to state distinctly that he has no authority whatever to represent the College any more than any other one of its 4,000 fellows; although, having been one of the original 500 organizers, and having from its inception taken the deepest possible interest in its welfare and success, he may feel rather more than

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some others, the necessity for clearing up certain existing misunderstandings.

Reading from the Official Year Book:

"The American College of Surgeons is a society of the Surgeons of the United States and of Canada. Its purposes are to keep before the profession and the general public of this continent a true conception of medicine as a social service; to advance especially the art and technique of surgery; and to advance the ideals in the practice of surgery, spiritual as well as intellectual. The College aims to include within its fellowship those surgeons who are competent in the art and technique of surgery, and who have in them a fine sensitiveness of their debt to public service.

"The College developed directly out of a consciousness within the Clinical Congress of Surgeons, first, that such an organization would serve to inspire genuine advance, not only on the human or moral side of the practice of surgery, but also on the side of the art and technique; and, second, that it would serve as a safeguard to the public in the matter of honest and competent practice of surgery. In the minds of these men the motive was to foster high professional ideals in medicine and to instruct the public as to what these ideals mean.

"This motive in November, 1912, found constructive expression. The Congress, at that time, appointed a committee of twelve to consider the advisability of organizing the College and it further empowered this committee to proceed with the organization if, after a thorough survey, such a step was deemed wise.

"Without delay the committee of twelve went about its task. It sought the advice and guidance of the surgeons of this continent who stood out preeminently as leaders in each of the divisions of surgery. It sought especially the counsel of the professors of surgery among the stronger medical schools. In March, 1913, so abundantly was the committee assured of the approval and support of these men that it issued a call for a meeting of the organization to be held in Washington on May 5, 1913. About five hundred surgeons were invited to this meeting. The College was legally organized. The purposes of the College are concerned directly with matters of character and of training, with the betterment of hospitals and of the teaching facilities of medical schools, with laws which relate to medical practice and privilege, and with an unselfish protection of the public from incompetent service; in a word, they embody those ideals which have stood the test of centuries. Upon these the Fellows are united. These are the ideals which each Fellow, single-handed, has endeavored to foster, and the expression of them to-day through the College comes as a sort of mass-consciousness of the whole body of fellows."

The pledge taken by each Fellow on admission is as follows:

"Recognizing that the American College of Surgeons seeks to develop, exemplify and enforce the highest traditions of our calling, I hereby pledge myself, as a condition of Fellowship in the College, to live in strict accordance with all its principles, declarations and regulations. In particular, I pledge myself to pursue the practice of surgery with thorough self-restraint and to place the welfare of my patients above all else; to advance constantly in knowledge by the study of surgical literature, the instruction of eminent teachers, interchange of opinion among associates, and attendance on the important societies and clinics; to regard scrupulously the interest of my professional brothers and seek their counsel when in doubt of my own judgment; to render willing help to my colleagues and to give freely of my services to the needy. Moreover, I pledge myself, so far as I am able, to avoid the sins of selfishness, to shun unwarranted publicity, dishonest money-seeking and commercialism as disgraceful to our profession; to refuse utterly all secret money trades with consultants and practitioners; to teach the patient his financial duty to the physician and to urge the practitioner to obtain his reward from the patient openly; to make my fees commensurate with the service rendered and with the patient's rights, and to avoid discrediting my associates by taking unwarranted compensation. Finally, I pledge myself to co-operate in advancing and extending, by every lawful means within my power, the influence of the American College of Surgeons."

It was at first intended to locate the permanent home of the College in Washington, but after the death of Dr. Murphy, who was one of its active founders, his friends and admirers organized a Memorial Assocration and offered to erect a memorial hall if the home was transferred to Chicago. This has been done and, when completed, the College will have a magnificent home valued at more than a million dollars, none of the cost being charged to the treasury of the College. This will leave the million-dollar endowment fund, a large proportion of which has already been collected, free to be used for the development of the work of the College. The latter fund is being raised chiefly among the Fellows, each of whom, if able, is contributing five hundred dollars.

The active work of the College is being carried on by a layman, Dr. Jno. G. Bowman, formerly president of a large western college, and a most competent and enthusiastic worker, aided by a staff of tactful and well-trained assistants, and backed by the advice and judgment of the Board of Regents who, although exceedingly busy men, have given most freely of their time and energy.

In his presidential address in 1913, Dr. Finney used the following as his subject:

"The Highest Development of the Greatest Efficiency Along All Lines of Public Service Relating in Any Way to Our Profession."

and, after giving an outline of the organization of the College, made this closing statement:

"The public and professional mind should, therefore, be at once thoroughly disabused of any wrong impression that the College is to be run by any one man or set of men, or by or in association with any

pre-existing organization for his or their personal gain or aggrandizement. The American College of Surgeons is no surgical trust, no close corporation for the benefit of the few.— — —. It stands only for the good of humanity and the uplift of professional standards of morality and education."

There is an impression in some sections that it is difficult for surgeons to gain fellowship in the College, and that the proper discretion has not always been displayed in the selection of its Fellows. This is not correct. It is perfectly true that mistakes have been made, and that good men have been kept out and possibly unsuitable ones taken in. These errors are, however, few and far between and are necessarily unavoidable on account of the size of the organization. This statement, however, can be made most positively: the College not only does not want to keep good men out, but it is most desirous of getting into its membership every safe and experienced surgeon who is a man of good character and high standing in the profession and community. And not only that, it is anxious for those surgeons who, from lack of opportunity, have not as yet come up to the standard, to so develop their knowledge and experience that they may meet the requirements and join the organization.

The College commends everything good in surgery and condemns all that is bad.

Actuated by the highest motives, it is endeavoring to endorse the safe surgeons, to stimulate other surgeons to bring their work up to standard, to improve surgical training in hospitals and to educate the public as to what safe surgery means and who are competent to do it.

To become a Fellow, a man must be of high character and ethical, and demonstrate that he is competent to do safe surgery, with all that that implies.

And this separating of surgery from medicine is going to be a great aid to the profession as a whole, as well as to surgeons, and a blessing to the people. Medicine has gotten to be too broad a science for one man to handle. Specializing is a necessity. A medical man who attempts everything, does nothing well, and kills himself by overwork and disappointment.

In some cities in this country every man does surgery, and in the event of a severe strictly medical condition, it is hard to find one competent to handle the case. Why this state of affairs, which the American College of Surgeons is doing much to correct, we do not know.

Safe surgery requires so much exact technical knowledge and skill, in diagnosis, operation and treatment, that it is a wonder to us how untrained and unskilled men are willing to risk lives and reputation in attempting the work. Nor is it proper for the would-be surgeon to learn at the expense of his patients. His practical training should be acquired at the side of an older and well qualified man. A good hospital interne training is also essential as the foundation to start on.

The College stands for thoroughness in every department of surgery. This carries with it the taking of full and complete histories, and thorough examinations, and investigations, including up-to-date laboratory and X-ray work.

The day of exploratory operations has passed, and but few cases should come to operation before the diagnosis is made.

The day of operation without investigation and preparation has also passed, except in emergency cases.

What a reflection on modern surgery to have a patient say that he visited a doctor for the first time, complaining of long-standing pain in the right abdomen, and after a slight examination was told to enter the hospital the same day and his gall bladder and appendix would be removed the next morning!

There is entirely too much ruthless and reckless surgery being done, we hope through misunderstanding and ignorance.

Except in emergency, no doctor should do any operation on a patient unless he is willing to have the same operation done on himself, under similar circumstances, with the same facilities and in the same way. Here is where the "Golden Rule" should be put into vigorous practice. If so carried out, how many fewer operations would be done!

We have no right to endanger the health and lives of our patients. We should always ask ourselves the question, what would we want done in our own case? We can't preach this doctrine too much. If widely disseminated, it will accomplish great good in these times when, in some sections, "everybody is doing surgery."

Nothing in surgery safeguards so much as

proper and thorough preparation of the patient, not only to enable him to better stand the ordeal of an operation, but also to avoid the complications which may follow.

The College stands for full and free co-operation between surgeons in the interest of the patient and public, and the elevation and advancement of the science. This means rising above such smaller matters as the acquisition of patients and purely pecuniary affairs.

Honest and honorable rivalry is good for all, acting as a stimulus for better and more accurate work.

The surgeon has, however, to be scrupulously careful to avoid every suggestion of criticism of the work of his fellow surgeons. any suggestions or advice to be made direct to the surgeons themselves. Professional ethics must be carefully observed among surgeons, both in theory and practice.

The matter of higher professional education is one of the duties imposed upon the surgeons by the College. This means the development of local societies and reading clubs, and the free and frank interchange of thought and methods between surgeons with, as its primary object, the improvement of surgical knowledge and skill.

Surgeons should and must attend Society meetings, both local and general, pay frequent visits to instructive clinics, and devote sufficient time to reading and studying.

The efforts of the College in urging standardization of hospitals is, of course, primarily for the purpose of safeguarding the interests of the patients, and secondarily to improve the teaching facilities for the younger generation of surgeons.

Dr. Wm. J. Mayo, in his presidential address before the College in October last, said:

"Let me say again that the hospital exists for the patient and not for the convenience of doctors. So long as we concede that doctors and hospitals exist for the patients and that all of our efforts are made for the welfare of patients, we are on ground that is fundamental. We are on ground upon which we can get together and from which we can make progress."

The minimum standard as set by the College requires:

Staff meetings and co-operation;

Full and complete histories;

Well equipped laboratory and X-ray department.

The first survey made in 1918 showed that only 89 100-bed hospitals could meet the requirements.

As a result of the work in 1919, about 200 came up to the standard.

From present reports it is estimated that by the end of this year at least 400 of the 671 100-bed hospitals will have come up to the mark.

Director Bowman has given us a number of illustrations of the safeguarding effect of hospital standardization on the patients.

For example, the table below is taken from the records of two hospitals and covers 100 consecutive cases of chronic appendicitis in each institution:

	In Hospital No. 1	In Hospital No. 2
Complete physical examination, including blood count	100	14
Number of consultations held	41	2
Working diagnoses recorded in advance of operation	100	None
Progress notes recorded by doctor	100	None
Infections following operation	3	12
Incorrect diagnoses	4	14
Number of patients relieved	94	77
Number patients died	2	9

The efforts of the College in improving surgical conditions have already had a most appreciable and marked effect. Not only the members of the profession, but the public as well, are co-operating enthusiastically. The staffs, managers and directors of practically every hospital that has been investigated, have all of them shown deep interest and productive co-operation.

Hospital standardization is only one branch of the work of the College, whose efforts will cover every line affecting improvement, safeguarding, and development in the profession.

The Fellows of the College also are co-operating in the good work by example, by teaching, by improvement and by study.

If there are any among them who are not imbued with the spirit of progress, development and good feeling, which pervades the members of the organization, it is simply because they have denied themselves the privilege of attending the inspiring and elevating conferences which are held from year to year.

Those of us who are already Fellows of the College carry a grave responsibility. We are not only sworn to perform certain duties for the profession, but we must also bear always in mind that every act of ours reflects directly

upon the organization, and we should, so far as it is humanly possible, do our part in the great uplift and development work for which the American College of Surgeons was founded.

And those of us doing surgery who are not already Fellows of the organization, should at once apply, find out the requirements; and, if we cannot as yet come up to them, so develop our knowledge and skill, that we may in the near future be able to show our eligibility.

There should be only one class of surgeons in this country, all of whom should be eligible, and should be received into the American College of Surgeons.

ABORTION ITS CAUSES AND TREATMENT.

By P. ST. L. MONCURE, M. D., F. A. C. S., Norfolk, Va.

We hear on all sides methods of saving the life of the child at term, and what precautions should be taken against infection and other dangers to the mother. We should not stop here. Should we not rather seek more to save the life of the foetus and caution the mother against the great danger of a miscarriage, to her future health? Women seem to regard very lightly the moral side of abortion; and do not appear to think they have committed anything wrong, no matter what steps have been taken to get rid of the foetus. If they can get by without having to undergo a painful operation at the hospital afterwards: or if it will not become known in the neighborhood, it is all right; and usually one woman will have only sympathy for the other in her suffering rather than condemn her for the crime.

Strictly speaking, abortion is the expulsion of the foetus during the first three months: miscarriage, the expulsion during the second three months; while premature labor deals with the last three months. Most people, however, use the first two terms synonymously.

It is said that thirty or more per cent. of all child-bearing women abort at least once before reaching the age of thirty; and after this age the percentage is higher. The percentage, however, is higher than this, as there are a great many abortions not recognized as such, and a great many are gone through successfully without ever calling on a physician.

Abortion is best divided into spontaneous and artificial; and artificial again into therapeutic and criminal. The third month is the one in which spontaneous abortion most frequently occurs.

The causes of abortion are very varied. The most trivial thing will produce abortion in those susceptible to it, while others may resort to almost every oxytocic drug and even mechanical violence, such as to endanger life, and still fail to discharge the foetus. It may be caused by the smell of turpentine, sulphur, or any bad odor; a fall or even misstep, fright, and especially violent exertion, long automobile rides are all exciting causes. Of the maternal causes, endometritis is the most frequent; retrodisplacement of the uterus is also a frequent cause. Any acute febrile or toxic condition of the mother, such as malaria, typhoid, and especially pneumonia, will cause it. Maternal syphilis I have found in my practice to be a very frequent cause of abortion. It is said that appendicitis is especially prone on account of infection to produce abortion, while operations for such conditions as appendicitis, ovarian tumors, and even fibroids of the uterus, have not, in my hands, with but one or two exceptions, caused abortions. I remember reporting in this society the removal of a fibroid of the ovary of considerable size, one that filled almost the whole pelvis and which had become adherent to the posterior surface of the uterus; the tumor was removed when pregnancy had advanced four months, and the woman went on to a successful termination of pregnancy. In only one of my cases of removal of the appendix during pregnancy has abortion followed.

We are so often asked by pregnant women who are suffering with their teeth, whether either having them pulled or filled by a dentist is harmful. I always tell them to go ahead and have whatever work done the dentist finds they need. I have never yet seen the pulling of a tooth cause abortion. Syphilis, tuberculosis and alcoholism are considered the principal paternal causes of abortion, and I would emphasize the *syphilis*, though I admit that in most of the cases, the mother had it also.

As to the foetal causes, death of the foetus, from any cause, will usually produce abortion in a short time, though I have seen two cases in which it was delayed for over a

month. And right here let me report two cases: The first was in a women who, having had two or three children in rapid succession, was determined not to have any more for certainly a year or two at least. She told me she had, in the early months of pregnancy, resorted to everything she could think of or could get her neighbors to tell her to do, but with no success. Finally, she felt life and listening once more to a lady friend, she resorted to swinging and otherwise performing on a gymnasium pole. She killed the child, or rather something did, and expelled it in about a week. The cord, in this instance, was twisted almost entirely off at the umbilicus. I will not pretend to say, though, that the child went through with the same gymnastic performances as his mother and twisted his cord off. The second was a case of nearly or quite five months' pregnancy, in which the mother had her husband massage her abdomen vigorously every night with "Mother's Friend" or other coal oil products. The baby died and was born in a week with the cord apparently twisted almost off at the umbilicus.

Therapeutic abortion, to my mind, is very rarely necessary. I have only performed it two or three times and in these, marked intractable toxaemia demanded it. I can readily understand, however, how such diseases as tuberculosis, nephritis, especially with retinitis, diabetes, and other grave constitutional diseases might make the procedure justifiable.

Criminal Abortion: I do not know of any class of practice a physician has to contend with more aggravating than to be called on to see a badly infected uterus, which he has to clean up, knowing that if anything happens and she gets up pus tubes or other bad sequelae, he will be blamed for what some criminal abortionist got big cash money for performing: and it is the one piece of surgery I have refused to undertake on several occasions because I did not wish to appear to make myself a party to such a case, even to clean up another man's dirty work. We all condemn it, and yet it goes on at a rapid rate, right here in our midst. Most of the cases we see—which cannot be considered, strictly speaking, *criminal*—are ones in which the woman herself, usually by some mechanical means, brings on an abortion. They are so often assisted by their husbands or some wise and kind (?) neighbor, who will at least be ever ready to tell her how she got along with the same thing, and suggest to her where to get the silk catheter and how to insert it, etc. The husband will assist by paying the bills, and getting whatever drugs or instruments they may need. It is a pity we cannot reach these *assistants* in some way. And it is next to an impossibility in this State to reach the criminal abortionist.

The treatment of abortion lays, first, in the cause. Remove the cause and you will have no abortions to treat. In threatened abortions, put them to bed, and keep them absolutely quiet; opium suppositories, or other form of opium by rectum, I believe, are better than opiates by mouth. Bromide and chloral by mouth, however, have been very beneficial in threatened abortion in my hands. In inevitable abortion, the only thing to do is to empty the uterus of its contents; but let nature do so if she will, assist her to do it if she will not. If there is any infection, or continued hemorrhage, curette thoroughly with a dull curette, unless it can be easily pulled out with a pair of curved ring forceps, or even with the hand. The after-treatment is the same as that following delivery. They should be kept in bed at least a week, or even ten days: but I find it very hard to keep my patients in bed that long.

INTESTINAL OBSTRUCTION DUE TO A NEW GROWTH INCARCERATED IN HERNIAL SAC. REPORT OF A CASE.

By GEORGE W. SCHENCK, M. D. Norfolk, Va.

M. W., age 57, walked into the clinic at St. Vincent's Hospital, complaining of pain in the right inguinal region, vomiting, hiccoughs, and inability to have a bowel movement.

The family history is unimportant: patient denies any previous sickness and venereal infection, but admits that at one time there were scales and papillae on the genital organs.

For the last two years he has worn a truss for a right inguinal hernia. Several times the mass has become large and difficult to replace but, by going to bed and applying hot cloths, he has been able to reduce and replace the hernia.

About ten days prior to entrance into the hospital, patient felt the mass slip and was

unable to replace it, though he tried for several days. This was attended by pain, nausea, vomiting and hiccoughs and inability to have a bowel movement.

Physical Examination.—Male, colored, fairly well developed and nourished. Anxious and distressed look in face.

Chest negative, heart regular.

Abdomen negative except in the right inguinal region, where there is bulging which increases in size toward and fills the scrotum—a typical scrotal hernia. Manipulation causes pain. The mass was about the size of a grape fruit, hard and boggy.

Diagnosis.—Right Inguinal Hernia Incarcerated, with Symptom of Strangulation. The patient was operated upon one hour after admission.

Operative Findings.—Under ether anesthesia an incision was made over the right inguinal canal. No constriction of the ring was found at its external opening, but the loop of ileum which was incarcerated was delivered with some difficulty, and showed a tumor about the size and shape of an egg—hard and irregular—located at the lowest point of the ileum, about fifteeen inches from the ileo-cecal junction. There were several small ulcerations on both sides of the tumor, the mesentery being involved and, the tumor having the appearance of a malignant growth, it was thought best to do wide resection.

About thirty inches of the ileum was resected, and lateral anastomosis to the cecum. The intestine was returned through the hernial opening and a typical herniotomy concluded the operation.

Urinalysis was negative. Blood Wassermann strongly positive.

The pathologist's report was a fibrosis surrounding an area of central fat necrosis; scattered through the fibrous tissue were numerous large endothelial cells filled with pigment. Section through the nodule adjacent to the mass shows loose connective tissue, infiltrated with red cells, and large numbers of large endothelial pigment containing cells—probably the pigment from broken-down blood cells.

The convalescence was smooth and uneventful, and the patient left the hospital fifteen days after the operation relieved of symptoms.

SOME INTERESTING CASES MET WITH IN OPHTHALMIC PRACTICE.

By B. R. KENNON, M. D., F. A. C. S., Norfolk, Va.

1. Case of Detachment of the Retina in Three Children of a Family of Five.

On April 2nd, 1917, Wm. M. consulted us on account of poor vision in his right eye. Ophthalmoscopic examination revealed detachment of the retina below covering one-half of fundus.

There was an indefinite history of injury to head while playing football six weeks previously.

On October 29, 1917, Margaret M., sister of the above, aged 15, consulted us for poor vision in right eye. Examination revealed detachment of retina above. V=20/200. This has gradually deteriorated until, today, it is scarcely light perception. The other eye now shows a fluid vitreous with many floating-opacities, so we are uneasy about its future, as it is probable that the same condition preceded the detachment of the right eye.

When we saw this case we thought it rather remarkable to find two detachments of the retina in the same family, in neither of which the refraction was myopic, but on September 22, 1919, Woodbury M. came in complaining of trouble in his left eye. Intra-ocular examination showed it to be due to a retinal detachment above and to the outer side. He gave a history of having been struck by an oyster shell thrown by a companion some weeks previously. We are inclined to believe that this case is due directly to the above traumatism.

As the first two cases had lost all sight under the usual treatment of rest in bed, sweats, etc., we determined to try draining away the subretinal fluid by means of a scleral trephine opening, with the hope that the retina would fall back into place and become permanently re-attached. The immediate result was apparently excellent, as examination at the end of a week showed the retina apparently reattached, but at the next examination—one week yater—there was a re-accumulation of fluid behind it.

The vision has greatly deteriorated until now it is 20/200, and will undoubtedly grow worse.

It certainly seems odd that there should be retinal detachment in three of five children

of one family, and in eyes which are not myopic; in fact, the examination, as accurately as could be made in the diseased eye and its fellow in each case, indicated that the refraction was normal, or nearly so.

We went over the family history in an endeavor to getting some light on the causation or tendency thereto, but found it to be negative as to eye or other history.

2. A Case of Glioma Retinae.

Louis R., aged 15 months, was referred to us by Dr. W. P. McDowell, who noticed the characteristic appearance of the pupil the day before. Our diagnosis was glioma retinae and early enucleation was advised, as the condition had been observed for three or four months by members of the family, but they had not given it the attention necessary, as his mother was ill and had died one month previously with mediastinal sarcoma. She had had her right eye enucleated February 13, 1896, by Dr. W. E. Driver, for glioma retinae, when four months old. She had had her first evidence of the mediastinal growth when our patient was six months old, so it was probably present before his birth.

We enucleated Louis' eye, cutting the nerve as far back as possible, and had frozen sections made at once with a view to doing an orbital exenteration in case the cut end showed sarcoma cells. The pathologist's report is as follows:

"Section made at time of operation with a view to determining presence of sarcomatous change in cut end of nerve did not show any extension of sarcoma into optic nerve at point of section. Section made through nerve head shows the microscopic appearance typical of sarcoma."

The question naturally arises as to whether:

1. The mediastinal growth in the mother could have had any connection with the glioma in her case. I think this almost impossible, as a period of 24 years elapsed between the removal of her eye and the appearance of the growth.

2. Whether the mediastinal sarcoma in the mother could have been the cause of the retinal glioma in the child. I believe that pathologists hold that tumor cells cannot be carried through the placenta to the foetus.

201 *Taylor Building.*

IMPORTANCE OF CHILDREN HAVING THEIR EYES EXAMINED UNDER MYDRIASIS, BEFORE ENTERING SCHOOL.

By A. D. MORGAN, M. D., Norfolk, Va.

Good vision is a prerequisite to the success a child makes in his class work and, in many cases, to his general health. Therefore, it behooves all of us to bear this in mind when examining children who are backward in their class work, or have any reflex nervous disturbances.

Hyperopia is nearly always congenital and is often hereditary, especially in high grades. A child may enter school with a vision 20/20 (apparently normal), showing no manifest ametropia, often with a latent hyperopia of 2, 3, or even 4 diopters, and that sometimes complicated with astigmatism, and thus the accommodation is over-taxed, giving rise to pain and various nervous symptoms. In many cases, if the pain and nervous symptoms are absent, the first sign of any refractive error to make itself manifest is a convergent strabismus, due to inability of the accommodation to overcome the refractive error and over-taxation of the muscles of the eyes. This condition is often allowed to continue until operative procedure must be resorted to in conjunction with the optical correction, if we obtain good results.

Myopia, unlike hyperopia, is rarely congenital. It usually makes its appearance from the seventh to the tenth years, and tends to be progressive through the early school years. Much can be done to prevent the increase of the myopia, if properly treated an dthe ametropia is corrected.

Astigmatism may be responsible for the most aggravated types of asthenopia and the most marked symptoms of eye strain. It is estimated that sixty per cent. of the functional headaches are caused by this type of refractive error, either alone or associated with other forms of ametropia, and also that various nervous symptoms are due to it, not only when the error is of hgh degree, but more commonly when it exists in low grade, and often unassociated with any symptoms which prominently direct attention to the eyes as the cause of the distress.

There are many conditions of the eyes, that could be found out under mydriatics, such as

diseased condition of the retina, nerve, or choroid, opacities of the lens or in the vitreons—and many of these conditions could be remedied before they caused any serious trouble to the vision.

Many children are left to themselves until they have lost one or two grades in school and are classed as mentally dull until, by chance, something develops which points to their eyes as the possible cause. These defects may then be corrected, but still they are one or two grades behind their classmates, and can never make that up, besides being an extra cost to the State.

If all children had their eyes examined under mydriatics as they become of school age, it would remove a serious handicap to many of our school children and improve the general health of many; furthermore, it would insure that every child would have its eyes examined by a competent physician, and a record kept which could be obtained whenever desired. It would prove of great value not only to the patient, but also for statistical purposes.

It should be, and I believe the era dawns, when every child will have a thorough eye examination under mydriatic along with a physical examination, before entering school.

625 *Dickson Building.*

Public Health Department

A Few Comparisons of Health Conditions in Norfolk From 1910 to 1920.

Deaths.

The general death rate for 1910 was:
White population, 14.4 per 1000 per annum.
Colored population, 29.1 per 1000 per annum.
Total death rate, white and colored, 18.1 per 1000.

The general death rate for 1919 was:
White population, 7.6 per 1000 per annum.
Colored population, 18.2 per 1000 per annum.
Total death rate, white and colored, 11.6 per 1000.

Births.

In 1910, there were 1,214 births reported.
In 1919, there were 2,909 births reported.
The birth rate for 1919 was 25 per 1000 population.

Typhoid Fever.

In 1910 the death rate from typhoid fever was 53.9 per 100,000.
In 1919 the death rate from typhoid fever was 5.2 per 100,000.

Tuberculosis.

The death rate from tuberculosis for 1910 was 260.7 per 100,000.
The death rate from tuberculosis for 1919 was 112.3 per 100,000.

Infant Death Rate.

335 babies under one year of age died in 1910, and the population was 67,452.
217 babies under one year of age died in 1919, and the population was 115,777.

Deaths From Causes Due to the Puerperal State.

In 1910 there were 19, population 67,542.
In 1919 there were 17, population 115,777.
A gain of approximately 100%.

Diarrhea and Enteritis Under 2 Years of Age.

In 1910, the death rate was 135.9 per 100,000.
In 1919, the death rate was 56.0 per 100,000.

Activities of the Department of Health.

Persistent distribution of educational propaganda, using as a slogan that good health is to a great degree purchasable, not alone with money, but by an obedience to the laws of nature, by a due regard to public and personal hygiene, by a definite understanding that disease and death is primarily a matter of cause and effect, and that the cause is in a majority of instances preventable; that health is the result of conservative, sensible, temperate living; that disease is the result of a violation of the laws of nature and outrages committed against our bodies.

A comparison of the fields of activity covered by the Department of Health for 1910 and 1920 is interesting:

In 1910 we had no district visiting nurse force, nor did we have medical inspection of schools.

Now we have a force of twelve nurses, covering schools, infantile welfare, prenatal, antituberculosis work, etc.

In 1910 all cases of contagious diseases, ex-

cept smallpox, were quarantined in their homes, boarding houses, hotels, etc.

Now we have a modern, well-built and equipped Contagious Disease Hospital with a capacity of one hundred cases. We employ an epidemiologist, who supervises all contagious diseases in the city, and nurses who investigate, under the epidemiologist, all cases, visit the homes, distributing literature and teaching the inmates how to avoid these diseases.

We operate the largest Venereal Clinic in the State.

We have systematic inspection and scoring of all food establishments, particularly restaurants, soda fountains, bakeries, bottling plants, etc.

We have four men devoting their entire time to meat, milk and food inspection.

In our Bacteriological Department, laboratory analyses are made daily of the city's public water and milk supply.

Milk is now graded in

Certified Milk,
Grade A Raw Milk,
Grade A Pasteurized Milk,
Grade B Pasteurized Milk.

All milk sold in Norfolk is highly standardized and comes from tuberculin tested herds.

Anti-and post-mortem inspections are made and stamped of locally killed meats by a veterinarian.

Regular daily sanitary inspections of the city are made by eight sanitary officers in the detecting and abatement of nuisances detrimental to the comfort and health of the city.

A medical and surgical staff of five physicians, elected to the Department of Health, rendered medical and surgical aid to the city poor.

A Free Dispensary, where medical and surgical aid and free medicines are dispensed to the poor, is operated daily.

Operated as an adjunct to the Department, is the Bureau of Recreations and Playgrounds, believing that a healthy, vigorous body and mind is an important factor in the general health of the children and paves the way for a hardy, vigorous, resistant man and womanhood.

The Department publishes a monthly report, giving in detail its work, together with articles teaching the people the principles of maintaining health and the avoidance of disease.

The public for the past several years have been in a receptive mood, and never before in the world's history have the people been so eager to learn and practice the principles and precepts of hygiene and health.

P. S. Schenck,
Commissioner of Health of Norfolk.

War History

Norfolk County Doctors Who Served In The World War.

Through the kindness of Dr. Frank Hancock, we have obtained the following histories of Norfolk County, Virginia, doctors in the World War. These sketches will prove of interest to their many friends, and we are glad to have them that they may be preserved in our records:

Jeremiah Aloysius.

Lieutenant (J. G.), U. S. N., R. F. Born Sept. 9th, 1881. Enrolled Aug. 29th, 1918. Active duty, Nov. 5th, 1918, Washington, D. C., Hampton Roads, Va., Transport Service, Sea-duty. Discharged Oct. 22nd, 1919.

E. Ray Altizer.

Born April 17th, 1894, Cambria, Va. Commissioned June 26th, 1918. Served in Camp Greenleaf, Ga., as First Lieutenant in Evacuation Hospital, No. 59. Discharged Jan. 5th, 1919, as First Lieutenant.

James M. Anderson.

Born July 10th, 1893, Oklahoma City, Okla. Commissioned First Lieutenant June 20th, 1917; Capt. May 3rd, 1918. Length of service 22 months. Duty—10 months in U. S., 12 months in A. E. F. 307 Train Headquarters. Discharged May 13th, 1919. Capt. Reg. Surgeon.

John Beattie.

Commissioned Captain M. C., U. S. A., July 12th, 1918. Detailed Base Hospital Camp Gordon, Atlanta, Ga. Surgeon to S. A. T. C., Oglethorpe University, Atlanta, Ga. U. S. A. General Hospital No. 22, Phila., Pa. Promoted to Rank of Major, Aug. 13th, 1919. Chief of Medical Service Base Hospital, Camp Jackson, Columbia, S. C. Honorably discharged from the military Service at Camp Dix, N. J., Oct. 16th, 1919.

Israel Brown.

Major M. C. National Guard, Virginia. Active Service Apr. 2nd, 1917. Surgeon 4th Va. Infantry. Promotion 29th Division, Organized 116th Field Hospital, 104th Sanitary Train. C. O. 116th Field Hospital, Oct. 5th, 1917, to Apr. 11th, 1918. Director Field Hospitals 104th Sanitary Train, Apr. 11th, 1918. Embarked for France July 4th, 1918. Defense Sector Haute Alsace, July 25th to Sept. 23rd, 1918. Meuse-Argonne Offensive, Oct. 8th to 28th, 1918. C. O. 104th Sanitary Train Oct. 20th to Nov. 20th. Discharged from service, June 5th, 1919.

G. Bentley Byrd.

Born Oct. 7th, 1891, Keller, Va. Commissioned Sept. 10th, 1917, Lieutenant Senior Grade, U. S. N. Discharged Jan. 10th, 1919.

Calvin H. Childress.

Born Oct. 19th, 1891, Richmond, Va. Commissioned (J. G.) U. S. N. R. F. Commissioned Lieutenant, U. S. N. July 1st, 1918. Resigned Sept. 9th, 1919.

Albert V. Crosby.

Born Oct. 5th, 1895. Commissioned Nov. 5th, 1917. Duty—Camp Gordon, June 12th, 2nd Repl. Reg. July 8th, 1918. Physical Exam. Board, Sept. 25th; Isolation Hospital Ward Surgeon, Oct. 12th. Executive Officer Isolation Hospital. Adjutant Over-seas Convalescent Camp. Discharged First Lieutenant, Feb. 4th, 1918.

James Erwin Diehl.

Born Nov. 3rd, 1885, Cashtown, Pa. Enrolled Aug. 31st, 1917, First Lieutenant, M. C. Duty—Base Hospital Camp Hancock, Augusta, Ga. Overseas with unit hospital No. 124 as Oto-Laryngologist. Discharged Jan. 15th, 1919.

S. R. Donohoe.

Born Dec. 27th, 1879, Hampton, Va. Active Service Jan. 15th, 1918, as 1st Lt. M. O. R. C. Promoted Captain, August 23d, 1918. Served through Meuse-Argonne Offensive, and with The American Army of Occupation in Germany. Returned to United States, and discharged Aug. 30th, 1919.

H. R. Drewry.

Born Aug. 5th, 1867. Commissioned Capt. M. C., N. G. Va., Feb. 18th, 1911. Assigned 4th Infantry, N. G. Va. Mustered in Federal Service, April 2nd, 1917. Commissioned Capt. M. C., U. S. A., Aug. 5th, 1917. Assigned Surgeon 112th N. G. Br. 29th Division Reg., Dec. 8th, 1917. Commissioned Capt. M. C., U. S. A., Aug. 6th, 1918. Assigned 152nd Depot Brigade Camp. Left N. Y. Brigade Surgeon 152nd D. B. Camp, Oct. 30th to Dec. 10th, 1918. Director of Infirmaries and assistant to Camp Surgeon from Dec. 10th, 1918, to May 2nd, 1919. Discharged May 2nd, 1919. Commissioned Major M. R. C., June, 1919.

W. E. Driver.

Born in Nansemond Co., Va., October 16, 1870. Commissioned Captain, August 29, 1917. Commissioned Major, November 2, 1917. Was in active service from October 20, 1917, to August 18, 1919. Discharged, August 18, 1919.

Clayton W. Eley.

Born Sept. 19th, 1890. B. S., University of N. C., 1912. M. D., University of Penn., 1916. Commissioned Lieutenant (J. G.) Medical Corps U. S. N. R. F., May 24, 1917. Lieutenant (J. G.) M. C. U. S. Navy, July 19th, 1917. Lieutenant M. C. U. S. Navy, Feb. 1st, 1918. Duty—U. S. Naval Hospital, Philadelphia, Pa. Naval Transport Service, Receiving Ship New York, U. S. Naval Hospital, Norfolk, Va. Resignation accepted Mar. 1st, 1920.

John B. Foster.

Born July 4th, 1892. Commissioned First Lieutenant M. R. C., Oct. 8th, 1917. Duty—Base Hospital Group, Chickamauga Park, Ga., Jan. 11th, 1918, to Dec. 20th, 1920. Discharged as First Lieutenant M. R. C., Nov. 28th, 1919.

Lomax Gwathmey.

Born Norfolk, Va., 1869. Commissioned Capt. M. R. C., July, 1917; Major M. C., Nov. 1917; Lieutenant Colonel M. C., Nov., 1918. On duty with Base Hospital, No. 41. Served at Camp Green, N. C. and Camp Sevier, S. C., St. Denis, France, near Verdun, France. Wounded Nov. 2nd, 1918. Invalided U. S. A. Discharged Feb. 1919. Cited May 20th for unusually meritorious and conspicuous service.

Frank Hancock.

Commissioned Captain, M. R. C., April 28th, 1917, Active Service, June 15th, 1917. Went to France August, 1917. Served with The First Division throughout the War. Returned to United States, and discharged Oct. 21st, 1919.

Merritt W. Healy.

Commissioned 1st Lieutenant Va. N. G., May 3rd, 1917. Captain M. C. U. S. A., Feb. 24th, 1919. Date of discharge June 22nd, 1919. C. O. 115th Amb. Co. 29th Division.

Joseph Stuart Hume.

Born Nov. 1st, 1889, Portsmouth, Va. Commissioned First Lieutenant Aug., 1917. Active duty Jan. 28th, 1918. Foreign service, July, 1918, to April, 1919, Base Hospital No. 41. Discharged Apr. 24th, 1919, St. Denis.

James Wilson Hunter.

Born April 30th, 1878, Norfolk, Va. Graduated Univ. of Virginia, M. A., 1899, M. D., 1901. Commissioned Captain M. C., U. S. Army, Nov. 5th, 1918. Ordered to Fort Oglethorpe, Nov. 21st, 1918. Assigned Roentgenology School, June 1st, 1918. Honorably discharged Camp Greenleaf, Chickamauga Park, Ga., Jan. 6th, 1919. Member of Medical Advisory Board No. 3, Virginia.

B. R. Kennon.

Commissioned Captain, Aug. 26th, 1917. Reported Active duty Sept. 14th, 1917, Camp Lee. Va. Commissioned Major, Dec. 5th, 1917. Joined B. H. No. 53, Camp Hancock, Apr. 16th, 1918. Landed in France July 30th, 1918. Served with B. H. 53 at Langres and Hospital Centre, Toul, France. Discharged March 2nd, 1919.

Burnley Lankford.

Born Feb. 15th, 1880, Southampton Co., Va. Commissioned 1st Lt. Mch. 13th, '16. Active Service April 17th, '18, Camp Sevier, S. C. Sailed July, 1918, for France. Assigned to Base Hospital 41; St. Denis. Promoted Captain Dec. 6th, '17. Promoted Major Nov. 14th, '18. Discharged Camp Dix April 21st, '19.

Junius F. Lynch.

Entered service with rank of Lieut. Colonel. August 17, 1917, to December 6, 1917, Assistant Division Surgeon 29th Division. Dec. 6, 1917, to Feb. 7, 1918, Surgeon 372nd Infantry. Feb. 7, 1918, to May 13, 1918, Division Surgeon 93rd Division. Attached to 42nd Division from May 13, 1918, to July 1, 1918. July 1, 1918, to Jan. 10, 1919, in command of Camp Hospital No. 30, St. Maixent, France. Jan. 12, 1919, to July 6, 1919, Chief of Surgical Service Base Hospital No. 57, Paris. Arrived in France in Feb., 1918. Honorably discharged at Hoboken, N. J., July 19, 1919.

Walter B. Martin.

Born Jan. 16th, 1888, Pulaski, Va. Commissioned First Lieutenant M. R. C. April 24th, 1917. Active duty Camp Greenleaf, June 13th, 1917. Capt. M. C. June 30th, 1919. On duty Camp Greenleaf, June 13th, 1917, to Oct. 18th, 1918. Camp Custer as Assistant Div. Surgeon, 4th Division, Oct. 19th, 1918, to March 30th, 1919. General Hospital No. 28, Fort Sheridan, from Apr. 1st, 1919, to Sept. 15th, 1919, as Asst. Chief of Medical Service. Discharged Apr. 15th, 1919.

A. D. Morgan.

Born Jan. 5th, 1886, Raleigh, N. C. Commissioned June 20th, 1917, First Lieutenant. Active duty Sept. 20th, 1918, to Apr. 19th, 1919. Reg. Surgeon 308th

Infantry, 77th Division. Discharged May 28th, 1919, Captain. Citations Divisional and A. E. F.

SAMUEL P. OAST.

Born Nov. 27th, 1887, Portsmouth, Va. Commissioned First Lieutenant M. C. N. G. Va., May 15th, 1917. Called for active service July 25th, 1917. Discharged because of physical disability Sept. 13th, 1917, at Richmond, Va. Re-commissioned First Lieutenant M. R. C., Oct. 15th, 1917. Called for active service, Nov. 5th, 1917. Reported at School of Oral and Plastic Surgery, Philadelphia. Camp Zachary Taylor Base Hospital from Nov. 27th to June 16th, 1918. Evacuation Hospital No. 14 in France, from Aug. 5th to Dec. 9th, 1918. Coblenz, Germany with Evacuation Hospital No. 49, 3rd Army from Dec. 15th, 1918, to Aug. 14th, 1919. Discharged Sept. 17th, 1919, Camp Lee, Va.

GEORGE A. RENN.

Commissioned Captain M. R. C., U. S. A., July 7th, 1917. Ordered to Port of Embarkation, Newport News, Va., Aug. 7th, 1917. Ordered to Camp Green, N. C., with Base Hospital, Sept. 10th, 1917. Appointed Adjutant U. S. A. Base Hospital, Camp Green, N. C., by Maj. W. L. Sheep, M. C. U. S. A. C. O. Promoted to Major M. R. C., U. S. A., Jan. 7th, 1918. Adjutant U. S. A. Base Hospital, Camp Green, N. C. Promoted to Lieutenant Colonel M. C., N. A. Commanding Officer U. S. A. Base Hospital, Camp Green, N. C. Discharged April 15th, 1919, with rank of Lieutenant Colonel M. C., U. S. A. Commissioned Lieut. Colonel R. C., U. S. A., May 5th, 1919.

N. F .RODMAN.

Born Jan. 3rd, 1891, Washington, N. C. Date of Commission March 5th, 1917. Served as Regimental Surgeon C. A. C. and Transport Surgeon. Discharged Feb. 6th, 1919, at U. S. Debark. Hospital, Ellis Island, N. Y. Rank First Lieutenant.

HERBERT W. ROGERS.

Commissioned First Lt. M. R. C., June 22nd, 1917. M. O. T. C., Ft. Benj. Harrison, Ind. Aug. 8th, 1917, as First Lieutenant, M. R. C., Base Hospital, Camp Sheridan, Ala., Oct. 8th, 1917, to Jan. 18th, 1918. On duty with 59th Infantry, 4th Division at Camp Green. Charlotte, N. C., A. E. F. and Germany Jan. 18th, 1918, to July 15th, 1919. Base Section No. 5 Segregation Camp, Brest, France, July 15th, 1919, to Oct. 12th, 1919. U. S. Army General Hospital No. 19, N. C., November and December, 1919. Commissioned 1st Lt. M. C., (Reg.), Oct. 24th, 1917. Captain M. C. (Reg.), Nov. 24th, 1918. Sailed for France, May 15th, 1917. Authorized to wear four stars for Aisne-Marne offensive, July 18th, to Aug. 6th, 1918. Vesle River Sector, Aug. 7th to 12th, 1918. St. Mihiel offensive, Sept. 12th to 16th, 1918. Meuse-Argonne offensive, Sept. 26th, Nov. 11th, 1918. With the Army of Occupation in Germany. Battalion Surgeon 4th Div., through the four years mentioned.

GEORGE SCHENCK.

Commissioned First Lieutenant M. R. C., Dec. 4th, 1917. M. O. T. C., January to April, 1918, Camp Upton, 77th Division Sanitary Train. Detached and assigned to Camp Surgeon. Organized and trained Motor Amb. Co. No. 61 as commanding officer. Promoted Captain U. S. A. Oct. 1919. Motor Ambulance Co. left Brest, France for U. S., July, 1919. Assigned to 8th Division, Reg. Inf. Returned to U. S. A., Aug. 24th, 1919. Discharged Sept. 7th, 1919.

HARRY R. SEELINGER.

Born Feb. 8th, 1889, Erie, Pa. Commissioned 1st Lieutenant, May 19th, 1917. Active duty July 18th, 1917, Camp Lee, Va. Foreign service June 1st, 1918, to June 1st, 1919. Citation dated Oct. 8th, 1918. Discharged June 8th, 1919. Commissioned Captain M. R. C., 1919.

WILLIAM A. SIMPSON.

Born Oct. 16th, 1892. B. A. Richmond College 1912. M. D. at Med. Col. Va. 1918. Enrolled May 14th, 1918. Rank (on enrollment) Lt. (l. g.) M. C. U. S. N. Duties—U. S. Naval Hospital, Portsmouth, Va., from May 14th, 1918, to May 1st, 1920. Urologist and Roentgenologist. Discharged May 1st, 1920, with rank Lieutenant, M. C. U. S. N. Rank held now, Lieutenant M. C. U. S. N. R. F. Now practising Urology and Roentgenology, Portsmouth, Va.

CHARLES C. SMITH.

Born Feb. 26th, 1891. Commissioned Captain, July 31st, 1915. Discharged June 22nd, 1919, as Captain C. O. of 116th Field Hospital.

R. S. SPILMAN.

Born 1868. In Spanish-American War, in Philippines 1901, 2, and 3, as Acting Asst. Surgeon U. S. A. Appointed 1st Lieut. M. R. C., April 24th, 1911. Capt. M. R. C., April 2nd, 1917. Major M. C., U. S. A., Sept. 25th, 1917. Regimental Surgeon 59th U. S. Infantry, 4th Division, U. S. Regulars, 8th Brigade. Called to active service May 3rd, 1917. At Gettysburg, Pa., and Camp Greene, Charlotte, N. C., organizing and training regulars for the 4th Division. Sailed from New York, May 3d, 1918. Arrived at Liverpool, Eng., May 16th. Sailed from Dover, May 17th, for Calais, France. May 20th. Training with the British in northern France. June 9th, left for the Marne to check drive to Paris, took the line at La Ferte, Sous Jouarre, 18 Kilometers from Chateau Thierry, now Brigaded with the French Army. In the following battles: Second battle of the Marne, Chateau Thierry, Vesle River, St. Matins, Ville Savoye, Fismes, Hervilliers, Vinly, Hautevesnes, Couchamps, Aisne-Marne, July 18th, to Aug. 6th, 1918. St. Mihiel, Sept. 12th, to 16th, 1918. Meuse-Argonne, Sept. 26th, to Nov. 11th, 1918. Gassed on the Vesle and Meuse-Argonne Drives. Recommended for promotion, and D. S. C. Cited several times in Div Orders for good work. G. O. 75, G. H. Q. A. E. F. gave him three bronze stars and one silver star. Discharged from the Military Service Nov. 17th, 1919.

CLAIBORNE WILLCOX.

Born Norfolk, Va., Apr. 11th, 1890. Commissioned 1st Lt., Apr. 15th, 1918. Active Service, June 25th, 1918. Went to France, Sept., 1918. Served with 604th Engineers through the Meuse-Argonne Offensive. Returned to United States, and discharged May 13th, 1920.

R. LLOYD WILLIAMS.

Commissioned Captain, M. R. C., 5th May, 1917. Active Service, 25th June, 1917. Regimental Surgeon 60th Infantry, afterwards a part of the 5th Division. In the trenches at Pont a Mouson, during the great drive on St. Mihiel. Promoted Major Oct. 3d, 1917. Transferred from 5th Division to Camp Hospital No. 26; then to Base Hospital No. 8 at Savaugney. Returned to United States, and discharged Dec., 1918.

T. B. WOODS.

Born Feb. 25th, 1889, Chester, S. C. Commissioned July 28th, 1917. Served Camp Greenleaf, Ga. On duty as First Lieutenant Motor Ambulance Co. No. 34. Discharged Jan. 13th, 1919, as First Lieutenant.

Proceedings of Societies

The Norfolk County Medical Society

Has just completed the most prosperous year in its history. It now has a membership of 175, having taken in a large number of new members during the past few months.

Under the active leadership of Dr. R. L. Williams, President, and Dr. L. B. Scott, Secretary, the weekly meetings have been well attended and most profitable. The annual meeting was held on the first Monday in June, and was celebrated by a delightful entertainment in the Doctors' Building. This was largely attended.

The election of officers resulted in the naming of Dr. Southgate Leigh unanimously as president: Dr. C. J. Andrews, as vice-president, and the re-election of Dr. L. B. Scott as secretary-treasurer.

Prince George County Medical Society.

A meeting was held at Disputanta on June 9th, as a concession to the physicians in the southern part of the county. The meetings have previously been held at Hopewell, which entails a long trip on those who reside in the southern district. Dr. W. B. Daniels, the veteran president of the Society, was in the chair.

An instructive and carefully prepared paper on Blood Pressure in Diagnosis was read by Dr. W. W. Cleere, of Hopewell. He cited numerous obscure cases in which the blood pressure was a determining factor in diagnosing the disease.

The Public Health Work in the Medical Inspection of the County Schools was discussed by Dr. Carrie Chase Davis, who has done this work with the financial assistance of the Hopewell Chapter, American Red Cross. A promising beginning has been made, which is expected to be highly beneficial to the schools.

Dr. Webb, of Disputanta, and Dr. Daniels were the hosts of the occasion and served a much appreciated and highly enjoyed supper to the Society after adjournment. It was voted to continue the meetings at Disputanta, as the interest is manifested in a substantial way, and on July 14th the Society will again meet at that place.

W. W. Cleere,
Secretary-Treasurer.

Richmond Academy of Medicine and Surgery.

At the regular bi-weekly meeting held May 11, 1920, Dr. J. Garnett Nelson, president, in the chair, *Dr. J. S. Horsley* reported the following case of Suturing of the Brachial Artery, and showed the patient:

Patient, white, 37 years old, had sustained an injury on April 6, 1920, in which the brachial artery of the right arm was completely severed and about one-third of the median nerve was cut. Immediate compress was applied and the patient was attended by Dr. Ben Hord, who sent the patient to St. Elizabeth's Hospital. Operation was done about one and a half hours after injury. The brachial artery was united end-to-end by the arterial-suture method, devised by Dr. Horsley, and the injured nerve was repaired with a single suture of arterial silk. As soon as the blood-current was turned on through the sutured artery the pulse appeared in the wrist. The wound had healed primarily, and it was demonstrated to those present that while the radial pulse was full, it could be entirely obliterated by pressure with the thumb on the brachial artery about the site of the injury, so showing that the artery was patent at the site of injury and that the radial pulse was not due to collateral circulation.

Dr. C. C. Coleman reported the following cases and presented the patients:

1. Interference with the Motor Function of the Ulnar Nerve, Due to Injury.

2. Motor Paralysis of the Upper Extremity Due to Lesion of the 5th, 6th, 7th and, Possibly, 8th Motor Roots of the Cervical Plexus.

Dr. Douglas VanderHoof read a paper entitled, *Spondylitis and Abdominal Pain*, which was discussed by Drs. Horsley, LaRoque, Henson, Brady, F. M. Hodges, Coleman and VanderHoof.

Mark W. Peyser, M. D.,
Secretary.

The Augusta County Medical Association, Inc.,

Held their bi-monthly meeting June 2nd, in Staunton, Dr. J. B. Rawlings presiding. Dr. H. H. Trout, Roanoke, Va., gave a talk on "Radium as a Surgical Adjunct." Two doctors were elected to membership at this meeting: Drs. G. D. Heath, Middlebrook, and C. P. Rexrode, Mt. Solon.

The Medical Society of Northern Virginia and the District of Columbia,

At its regular meeting held in Alexandria, May 19, elected the following officers: President, Dr. George Tully Vaughan, Washington; vice-president, Dr. Arthur Hooe, Washington; recording secretary, Dr. Wm. T. Davis, Washington; corresponding secretary, Dr. Jos. D. Rogers, Washington; treasurer, Dr. Robert S. Lamb, Washington.

Medical Education.

The Commission On Medical Education In Virginia.

The following appointments have been made to the Commission on Medical Education in Virginia: From the Senate of Virginia, Senator C. B. Woodson, of Nelson County; Senator M. B. Booker, of Halifax County; from the House of Delegates, Hon. Wilbur C. Hall, of Loudoun County; Hon. William D. Prince, of Sussex County; appointed by the Governor, Dr. Beverley R. Tucker, of Richmond; Dr. James H. Dillard, of Charlottesville; Dr. Julian A. Burruss, of Blacksburg; Dr. Stuart McGuire, of Richmond (on nomination by the Board of Visitors of the Medical College of Virginia), and Dr. Theodore Hough, University, Va., (on nomination by the Board of Visitors of the University of Virginia).

The Commission held its first meeting in Richmond, June 28, 1920, and organized by the election of Honorable Wilbur C. Hall as chairman, and Dr. Theodore Hough as secretary. The following resolution was adopted:

Whereas the function of the Commission on Medical Education in Virginia is to make a thorough investigation of the present status and future possibilities of medical education in Virginia and on the basis of this to make recommendations leading to the establishment of a single state-supported medical school in Virginia; and whereas it is not conducive to the efficiency of such an investigation while in progress to have the press of the state report the results of separate meetings of the Commission except as authorized by the Commission:

Therefore Be It Resolved that no reports of the results of meetings of this Commission be made to the press except such reports as are directly authorized by the Commission itself.

And Be It Furthermore Resolved that the newspapers in Richmond, Charlottesville, and elsewhere be requested to co-operate in making this resolution effective.

Provided that nothing in this resolution shall be construed as discouraging the appearance before this Commission of any citizen or body of citizens of the State of Virginia to present pertinent facts or considerations bearing upon the work of the Commission. Whenever any citizen or body of citizens desires to appear before the Commission for the aforesaid purpose, they must first communicate this desire to the President or Secretary of the Commission. This request must then be laid before the Commssion which shall make an appointment for the applicants to appear before the Commission.

The Commission also adopted the following resolution:

Whereas the Commission on Medical Education in Virginia desires contributions of facts and considerations pertinent to its investigations from citizens of the State of Virginia and of other States who are in a position to contribute such facts and considerations;—

Therefore Be It Resolved that the Secretary of the Commission be instructed to invite the following citizens, boards, or associations to make any contribution of facts or consideration pertinent to the subject of investigation by the Commission; namely, the best organization of medical education in Virginia:—

1. The President and the Board of Visitors of the University of Virginia.
2. The President and the Board of Visitors of the Medical College of Virginia.
3. The Officers of the Medical Faculty of the University of Virginia.
4. The Officers of the Medical Faculty of the Medical College of Virginia.
5. The Medical Society of Virginia.
6. The Local Branches or Societies of the Medical Society of Virginia.
7. The Board of Medical Examiners of Virginia.
8. The Board of Health of the State of Virginia.

And Be It Furthermore resolved that the Secretary be instructed to invite similar contributions from any other citizens, organizations, or boards in Virginia or elsewhere as may be suggested to him by any member of the Commission, and that the Secretary be authorized to use his own judgment as to the best means of conveying this invitation to the parties concerned; for example by the use of form letters or by publication in the **Virginia Medical Monthly** or any other medium of communication.

And Be It Furthermore Resolved that in issuing these invitations the Secretary be instructed to emphasize the fact that the Commission does not desire merely expressions of opinion but the facts and considerations which lead the writer to the conclusions reached.

It was also voted to request the administrative officer or officers of other medical schools which are, or have been, face to face with similar problems to those which confront the Commission, to contribute such facts or pertinent considerations from their own experience in solving these problems as they may be in a position to contribute. In accordance with this resolution, questionaires are being sent to the administrative officers of some twenty-three medical schools.

In addition to this, the Commission has

taken steps to secure an expert survey of medical education in the State by outside agencies. These agencies will report their findings to the Commission with recommendations as to the best policy to be pursued by the State of Virginia in the future.

It will be seen from the above resolutions that the Commission is determined to make a thorough and impartial study of medical education in Virginia. In this work it needs all the assistance it can obtain from those who are in a position to give this assistance. Formal requests have been sent to the Medical Society of Virginia, the Board of Medical Examiners, and the State Board of Health. The Commission would also greatly appreciate similar contributions from the local branches or societies of the Medical Society of Virginia, and takes this method of issuing an invitation to each of these societies to contribute to its work. The resolutions quoted also show that the Commission does not merely desire expressions of opinion with regard to the best course to be pursued by the State but rather desires the facts and considerations which lead to the conclusions reached. Among the subjects upon which such local societies or individual physicians can make valuable contributions are the following:

1. The needs of the State of Virginia for physicians and the number of men who should be graduated annually to meet these needs.

2. The relation of the output of physicians by the medical colleges of the State to the supply of physicians and health officers for the rural districts, and other factors influencing the supply of physicians and health officers for the rural districts; together with recommendations as to the best methods of securing improved medical service for the rural districts of Virginia.

3. The present clinical material and facilities in the State available for the teaching of medicine, including the possibilities of utilization of State institutions, such as insane asylums, tuberculosis sanatoria orthopedic clinics, etc., with suggestions as to how these may be so developed and improved that, while serving the needs for which they are primarily established, they may be utilized to the utmost in the improvement of medical education in the State and in the advancement of the science and art of medicine.

4. The needs of the State of Virginia for post-graduate instruction in medicine, and how these needs can best be met.

5. The needs of the State of Virginia for the training of public health officers, the relation of this training to medical education, and how these needs can best be met.

6. The needs of the State for adequate training of nurses, and how these needs can best be met.

7. The proper basis of hospital support for the teaching hospital or hospitals of the State-supported medical school, with special reference to the part which should be assumed by the State out of its general funds and the part which should be assumed by the cities and counties which send patients to the said hospitals.

8. The best practicable basis for securing teachers for the clinical branches in Virginia.

9. The possibilities of development of a single State-supported medical school at the University of Virginia with the advantages and disadvantages of this location.

10. The possibilities of developing the single State-supported medical school in Richmond as the Medical Department of the University of Virginia, with the advantages and disadvantages of this location.

All communications for the Commission should be sent to the Secretary, Dr. Theodore Hough, University, Va.

The Commission voted to hold its next meeting in Charlottesville early in September.

Correspondence

Use of Arsenic Preparations In Treatment of Syphilis.

Bureau of the Public Health Service,
Washington, *May* 12, 1920.

Bureau Circular Letter No. 219.

To Medical Officers, U. S. Public Health Service, and Others Concerned:

Your attention is invited to the extensive exploitation through advertisements in professional journals and otherwise of the various arsenic preparations which are not related to the arsphenamine group. The preparations referred to are sold with claims in regard to their value in the treatment of syphilis, which are unwarranted.

In the opinion of this office it is in the in-

terest of all concerned that the subcutaneous, intramuscular or intravenous use of arsenic in the treatment of syphilis be confined to preparations of the arsphenamine group, as these agents are of established value and are produced under the regulations of the Public Health Service. The following firms are now licensed for the manufacture of arsphenamine and neo-arsphenamine:

Dermatological Research Laboratories, 1720 Lombard Street, Philadelphia, Pa.

H. A. Metz Laboratories, 122 Hudson St., New York, N. Y.

Diarsenol Co., Inc., Buffalo, N. Y.

Takamine Laboratories, Clifton, N. J.

The Lowy Laboratory, of Newark, N. J. has been granted a license to prepare a stable solution of arsphenamine.

It is not the desire of the Bureau to limit clinicians in the choice of agents of recognized worth, but in the case of arsenic preparations, not members of the arsphenamine group, the available evidence indicates that their routine use is inadvisable in the treatment of syphilis. If it is desired to use any of these preparations in a purely experimental way, previous authority from the Bureaun should be secured. Applications for this authority should be accompanied by a statement as to the composition of the drug, including the structural formula and the reason for its use. All information available on the value of the preparation should be forwarded.

H. S. Cumming,
Surgeon General.

The Truth About Medicine

During May the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-official Remedies:

Dietetic Cellulose Co.:
Celluflour.

Intra-Products Co.:
Ven-Iron Cacodylate
Ven-Iron Cacodylate with Sodium Chloride.

NEW AND NON-OFFICIAL REMEDIES.

Barbital-Chiris.—A brand of barbital (see New and Non-official Remedies, 1920, p. 82) complying with the N. N. R. standards. Antoine Chiris Co., New York.

Barbital Sodium-Chiris.—A brand of barbital sodium (see New and Non-official Remedies, 1920, p. 83) complying with the N. N. R. standards. Antoine Chiris Co., New York.

Condensed Vitalate.—A pure culture of **Bacillus bulgaricus.** It is designed for internal administration (see general article, Lactic Acid-Producing Organisms and Preparations, New and Non-official Remedies, 1920, p. 156). The preparation is distributed by the manufacturer only. Vitalate Laboratories of California, Pasadena, Calif. (Jour. A. M. A., April 3, 1920, p. 951).

Elixir Barbital Sodium-Abbott.—Each fluid ounce contains barbital sodium-Abbott (see New and Non-official Remedies, 1920, p. 84), 20 grains. Abbott Laboratories, Chicago.

Aromatic Chlorazene Powder.—A powder composed of Chlorazene (see New and Non-official Remedies, 1920, p. 137), 5 per cent.; sodium bicarbonate, 5 per cent.; eucalyptol, 2 per cent.; saccharin, 1 per cent.; and sodium chloride, 87 per cent. Abbott Laboratories, Chicago.

Capsules Corpora Lutea Desiccated-Hollister-Wilson 2 grains—Each capsule contains desiccated corpus luteum-Hollister-Wilson (see New and Non-official Remedies, 1920, p. 204), 5 grains.

Capsules Corpora Lutea Desiccated-Hollister-Wilson 5 grains—Each capsule contains desiccated corpus luteum-Hollister-Wilson (see New and Non-official Remedies, 1920, p. 204, 5 grains.

Tablets Corpus Luteum Desiccated-Hollister-Wilson 2 grains.—Each tablet contains desiccated corpus luteum Hollister-Wilson (see New and Non-official Remedies, 1920, p. 204), 2 grains.

Tablets Corpus Luteum Desiccated-Hollister-Wilson 5 grains.—Each tablet contains desiccated corpus luteum-Hollister-Wilson (see New and Non-official Remedies, 1920, p. 204), 5 grains. The Hollister Wilson Laboratories, Chicago.

Schick Test-Gilliland.—Marketed in packages containing a capillary tube of diphtheria toxin (standardized) and a vial of diluent, and in packages containing four tubes of diphtheria toxin and four vials of diluent. See Diphtheria Immunity Test (Schick Test), New and Non-official Remedies, 1920, p. 304. Gilliland Laboratories, Ambler, Pa.

Corpora Lutea Soluble Extract-Hollister-Wilson—A sterile solution of those constituents of corpus luteum which are soluble in physiological solution of sodium chloride, containing in each Cc. 0.02 Gm. of soluble matter in addition to sodium chloride and chlorbutanol (as a preservative). For a discussion of actions and uses, see general article on Ovary, New and Non-official Remedies, 1920, p. 201. It is marketed in the form of Ampoules Corpora Lutea Soluble Extract-Hollister-Wilson 1 Cc., Hollister-Wilson Laboratories, Chicago.

Eucatropine. Euohthalmine. Phenyl-Glycolyl-Methyl-Vinyl-Diacstonalkamine Hydrochloride.—Eucatropine was first introduced as Euphthalmine. It produces prompt mydriasis, free from anesthetic action, pain, corneal irritation, or increase in intraocular tension. The effect on accommodation is slight and transient. Eucatropine is useful as an aid in ophthalmoscopic examinations in place of atropine, homatropine, etc.

Eucatropine-Werner.—A brand of eucatropine complying with the N. N. R. standards. Werner Drug & Chemical Company, Cincinnati, Ohio (Jour. A. M. A., May 1, 1920, p. 1231.)

Radium Sulphate.—Radio Chemical Corp.—Supplied in the form of a mixture of radium sulphate and barium sulphate. All deliveries are made subject to the tests of the U. S. Bureau of Standards. Radio Chemical Corporation, New York. (Jour. A. M. A., May 8, 1920, p. 1316.)

Acetylsalicylic Acid-Heyden.—A brand of acetylsalicylic acid (see New and Non-official Remedies,

1920, p. 247) complying with the N. N. R. standards. Heyden Chemical Works, Garfield N. J. (Jour. A. M. A., May 22, 1920, p. 1457.)

Streptococcus Vaccine (Gilliland).—A streptococcus vaccine (see New and Non-official Remedies, 1920, p. 290) made from hemolytic streptococci, viridans (green-producing) streptococci and nonhemolytic streptococci. Marketed in packages of four syringes in packages of four 1 Cc. ampules and also in vials of 5, 10 and 20 Cc. The Gilliland Laboratories, Ambler, Pa.

Tablets Dichloramine-T 4.6 grains.—Each tablet contains 4.6 grains of dichloramine-T-Abbott (see New and Non-official Remedies, 1920, p. 139). Abbott Laboratories, Chicago.

Solution Arsphenamine-Lowy.—An aqueous 0.5 per cent. solution of arsphenamine possessing the proper degree of alkalinity. It is supplied in ampules containing 80 Cc. and 120 Cc., respectively, each being provided with a hypodermic needle and attachment for intravenous administration. The ampules are provided with an expiration date after which time they should not be used, and with a color standard to which they must conform. The solution is made from the particular brand of arsphenamine selected by the purchaser. Lowy Laboratory, Inc., Newark, N. J. (Jour. A. M. A., May 29, 1920, p. 1519.)

Pituitol Obstetrical.—Pituitary Extract Obstetrical-Hollister-Wilson.—An extract of the posterior lobe of the pituitary body of cattle, approximately three times the strength of Solution of Hypophysis, U. S. P., preserved by the addition of chlorbutanol. It is standardized according to the method of G. B. Roth. For actions and uses, see general article, Pituitary Gland, New and Non-official Remedies, 1920, p. 205. Marketed in the form of Ampoules Pituitol Obstetrical 0.5 Cc. and Ampoules Pituitol Obstetrical 1 Cc. Hollister-Wilson Laboratories, Chicago.

Pituitol Surgical.—Pituitary Extract Surgical-Hollister-Wilson.—An extract of the posterior lobe of the pituitary body of cattle, approximately six times the strength of Solution of Hypophysis, U. S. P., preserved by the addition of chlorbutanol. It is standardized according to the method of G. B. Roth. For actions and uses, see general article, Pituitary Gland, New and Nonofficial Remedies, 1920, p. 205. Marketed in the form of Ampoules Pituitol Surgical 1 Cc. Hollister-Wilson Laboratories, Chicago.

Radium Bromide, Radio Chemical Corp.—Supplied in the form of a mixture of radium bromide and barium bromide. All deliveries are made subject to the tests of the U. S. Bureau of Standards. Radio Chemical Corporation, New York.

Radium Carbonate, Radio Chemical Corp.—Supplied in the form of a mixture of radium carbonate and barium carbonate. All deliveries are made subject to the tests of the U. S. Bureau of Standards. Radio Chemical Corporation, New York.

Radium Chloride, Radio Chemical Corp.—Supplied in the form of a mixture of radium chloride and barium chloride. All deliveries are made subject to the tests of the U. S. Bureau of Standards. Radio Chemical Corporation, New York.

PROPAGANDA FOR REFORM.

Deterioration of Oubain (Crystalline Strophanthin) Solutions—Levy and Cullen, having observed wider variation in the potency of several lots of ouabain furnished in ampules, found that the sterilized solutions were decidedly alkaline in reacton, whereas freshly prepared aqueous solutions of the drug were neutral or slightly acid. Since ouabain (crystallized strophanthin) is readily rendered biologically inert by heating with alkali, the authors ascribe the deterioration of the solutions to alkali derived from the soft glass from which ampules are often made. The deterioration may be averted by the use of containers of hard glass (Jour. A. M. A., April 3, 1920, p. 955).

Anti-Tuberculous Lymph Compound (Sweeny.)—This is put out by the National Laboratories of Pittsburgh, Dr. Gilliford B. Sweeny, "Medical Director." Just how Anti-Tuberculous Lymph Compound is made to-day is not stated. It is fair to assume that it is not made in such a manner as to bring it under the federal laws governing the sale of serums and similar preparations. The claims made for the preparation are uncritical and unscientific, mainly of the testimonial class. When some of these testimonials were investigated, every physician who answered the inquiry regarding his previous and present opinion declared in effect that he had long since ceased to have faith in the value of the preparation. The facts are that no serum or lymph has thus far been proved to have any value in the treatment of tuberculosis. Having examined the available evidence, the Council on Pharmacy and Chemistry declared Anti-Tuberculous Lymph Compound (Sweeny) not acceptable for New and Non-official Remedies (Jour. A. M. A., April 3, 1920, p. 965).

Anti-Syphilitic Lymph Compound (Sweeny.)—This preparation is made by or under the direction of Dr. Gilliford B. Sweeny, whose researches (?) led to the production of Anti-Tuberculous Lymph Compound (Sweeny). According to the available information, this preparation is made by suspending benzoate of mercury in lymph from the bullock. The circular exploiting this preparation makes the statement that it is seldom necessary to continue the treatment beyond two months. If one chooses to be credulous, this would indicate extraordinary power for the mercury. That any physician could be induced to place his trust in this preparation is almost unthinkable. The Council on Pharmacy and Chemistry declared Anti-Syphilitic Lymph Compound (Sweeny) not acceptable for New and Non-official Remedies (Jour. A. M. A., April 3, 1920, p. 966.)

Pharmaceutical Houses and the Council on Pharmacy and Chemistry.—In no one direction has the Council made greater efforts than in its endeavors to secure the fullest co-operation of the various pharmaceutical houses. The difficulty has been, and always must be, the fundamental antagonism between objectives that are largely commercial, on the one hand, and purely scientific, on the other. Nevertheless, the Council has always believed that there is a possible middle ground wherein the interests of therapeutics would not be injured, but would go hand in hand with commercial development based on enlightened self-interest. The Council has practically the undivided support of manufacturers of medicinal chemicals; but pharmaceutical firms which find it profitable to promote specialties, unscientific or ordinary mixtures of pharmaceutical or biologic products sold under trade names, have not supported the Council. The methods of the pseudochemical companies, whose sales propaganda in the interests of unscientific nostrums with its attending damage to scientific medicine had led to the establishment of the Council, has found their lodgment in most of the pharmaceutical houses. Is it any wonder that such firms are antagonistic to the work of the Council? When the medical profession as a unit will support

the Council in its work, then such firms will find it good business policy to market products which are eligible for New and Non-official Remedies, but not before. The Council, constituted of scientific men working without remuneration in the interest of scientific medicine and the medical profession, expects, and rightfully, the co-operation and support of the members of that profession. What is needed is the active, sympathetic co-operation of physicians; the co-operation of pharmaceutical houses will follow as a matter of course (Jour. A. M. A., May 1, 1920, p. 1234).

Some Misbranded Drug Products and Nostrums.—The following products have been subject to prosecution by the federal authorities under the Food and Drugs Act: Quinin Sulphate Tablets and Calomel Tablets of the Drug Products Company, New York City, did not contain the amount of drug claimed. Acetphenetidin and Salol Tablets of the Carrol Dunham Smith Pharmacal Co., New York City, did not contain the amount of drugs claimed. Hostelley's Hypophosphites and Hostelley's Chemically Pure Hypophosphites were adulterated and misbranded. Stoddard's Pinus-Codeia, Salcetol Codeia Tablets. Salcetol Phenylamine Ammonii Salicylate Tablets. Salcetol Co. No. 2 Infant Corrective Tablets. Cannabin Co. Tablets, G. S. Stoddard & Co., New York City, were misbranded. Dr. King's Star Crown Brand Pills were sold under false therapeutic claims. Marshall's Pain Drops, Marshall's Lung Syrup, Dr. J. C. Brown's Unequaled Liquid Drops, Marshall's Blood and Liver Pills. Egyptian Oil, and Arctic Oil Liniment of the M. W. Marshall Medicine Co. were sold under false therapeutic claims. (Jour .A. M. A., May 1, 1920, p. 1269).

More Misbranded Nostrums.—The following "patent" medicines have been the subject of prosecution by the federal authorities because they were sold under false claims: Seelye's Ner-Vena, a syrup containing alcohol and vegetable extractives, among which were those of juniper, wild cherry, senna, gentian, sassafras, uva ursi and cinchona; Hill's Rheumatic Pills, consisting of vegetable extracts, including aloes, and 5 per cent. of mineral salts; Jenkin's Rheumatism, Gout and Neuralgia Annihilator, containing over 46 per cent. alcohol, salicylic acid, resinous plant extract and water. Short Stop, a syrup containing licorice and wild cherry extract, ammonium carbonate, small amounts of an antimony salt, benzoic acid, camphor, oil of anise and traces of an alkaloid. Antiseptine, a powder composed essentially of anhydrous zinc sulphate and lead acetate together with a small amount of copper acetate. Cassidy's 4X, consisting essentially of aloes, colocynth, resins, and a small amount of a mercury salt, alcohol and water. "P. G. S." (Schuh Drug Co.) consisting of plant extract including extract from a laxative drug, resin, and not more than a trace, if any, of mercury, alcohol and water. Red Cross Pile Cure, suppositories consisting essentially of cocoa butter, tannin, menthol, a lead compound, iodid, sulphate and possible acetate. (Jour. A. M. A., May 22, 1920, p. 1473.)

Proprietary vs. Non-proprietary—The exhibit of the A. M. A. Chemical Laboratory at the recent New Orleans session of the A. M. A. contained a card comparing the cost of drugs sold under proprietary and non-proprietary names. The following list compared the wholesale price per ounce of drugs sold under protected (proprietary) names with the same drug sold under a common (non-proprietary name: Aspirin-Bayer, $0.85; acetylsalicylic acid, $0.16. Phenacetin, $0.65; acetphenetidin, $0.27. Atophan, $3.50; cinchophen, $2.00. Kelene (10 gm.), $0.56; ethyl chloride (10 gm.), $0.45. Duotal, $1.90; guaiacol carbonate, $0.80. Urotropin, $0.60; hexamethylenamine, $0.21. Sulphonal, $1.70: sulphonmethane. $0.80 Trional, $1.90; sulphon-ethyl-methane, $1.00. Diuretin, $1.75: theobromine-sodium salicylate, $0.70. Aristol, $1.80: thymol-iodide, $1.00. Economy as well as scentific prescribing demands the use of non-proprietary names whenever possible (Jour. A. M. A., May 22, 1920, p. 1473).

Cotton Process Ether.—The Du Pont Chemical Works have decided to present "Cotton Process Ether" to the Council on Pharmacy and Chemistry for consideration, and the ether will be thus defined: An improved anesthesia ether consisting of highly refined diethyl oxid with approximately two volumes of ethylene, one-half volume carbon dioxid and one per cent. by weight of ethyl alcohol (Jour. A. M. A., May 22, 1920, p. 1474).

Fumes of Iodin.—For some time manufacturers have urged substitutes for tincture of iodin, claiming that the substitutes were free from the undesirable properties of the tincture and at the same time possessed special virtues which the tincture could not possess. More recently, attention has been directed to the administration of iodin in the form of vapor. Luckhardt reports that they are rapidly and completely absorbed. It was found that the administration of iodin through the respiratory passages even in small quantities is fraught with great danger Such administration induces dysprea, and when it is given in large quantities, acute and fatal pulmonary edema ensues within twenty-four hours. When respiratory disorders are present at the time of the administration, the fatal edema supervenes very quickly (Jour. A. M. A., May 29, 1920, p. 1521).

The Short and Catchy Name.—A laborer went to a Brooklyn physician for treatment and was given three prescriptions. One of the prescriptions called for "Laxol," the word being written on a piece of blank paper without directions. The drug clerk misread the prescription and dispensed an "original" bottle of "Lysol," which bore the usual posion label. The man drank the entire three ounces of "Lysol" and died. Laxol is a flavored and sweetened castor oil, and there is no excuse for prescribing it (Jour. A. M. A., May 29, 1920, p. 1524).

Hostetter's Bitters.—Hostetter's Celebrated Stomach Bitters is declared to contain 25 per cent. of alcohol. Analyses in the past have shown that the alcohol content has varied widely at different times, the amount having never been less than 25 per cent. by volume, but sometimes as high as 43 per cent. A recent analysis by the A. M. A. chemist showed 24. 72 per cent. of alcohol by volume. small quantities of cinchona alkaloids (about ¾ grain per fluid ounce) and no other therapeutically active ingredients in appreciable quantities. Six fluid ounces of the preparation (6 doses) were dealcoholized. the solution evaporated, the residue mixed with milk sugar, the mixture placed in capsules, and the capsules swallowed at one dose by a healthy man. No effects were noted. It is evident that alcohol is by far the most active ingredient in Hostetter's Stomach Bitters. The analysis failed to reveal the presence of any drugs in quantities that would prevent the preparation's being used as a beverage (Jour. A. M. A., May 29, 1920, p. 1534).

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ALEX. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
BEVERLEY R. TUCKER, M. D., Richmond, Va.
PAUL W. HOWLE, M. D., Richmond, Va.
EDWIN L. KENDIG, M. D., Victoria, Va.
ALFRED L. GRAY, M. D., Richmond, Va.

EDITOR
ALEX. G. BROWN, Jr., M. D.
G. H. WINFREY, Business Manager.

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Editorial

The Norfolk Edition.

The Norfolk County Medical Society, we believe, is one of the best local societies in the State. Its membership is composed of the physicians and surgeons of the City of Norfolk and adjacent section. This organization is a serious and progressive one, carrying forward effectively the dual purposes of a medical association. On the one hand, it is an organized and democratic body of medical men attending earnestly to the business and legislative functions of medical life. At certain stated meetings, we understand, it convenes for and considers only matters pertaining to the business, legislative, ethical, secular and social side of the profession. No doubt, at these meetings, questions bearing upon public health, the relation of the medical profession to civic progress and legislation, tariff, professional and ethical questions, etc., are, from time to time, considered and acted upon. But, on the other hand, and to a far greater degree, the Norfolk County Medical Society, under the leadership of its excellent officers, functions more effectively and successfully as a scientific body of medical men bound together for the chief purpose of promoting medical knowledge. This is the big aim and the chief object of its frequent meetings and its high percentage of attendance. Its work as we have heard of it, has been and is to carry forward clinical and scientific knowledge and to keep its members abreast of the new thought and advances in medical research. We understand that definite programs or schedules are laid out and followed in scientific work; that the leaders of the organization plan for the membership well mapped-out courses of study, that its frequent meetings are replete with up-to-date papers, case reports and clinical demonstrations.

The foregoing comment is merely a word of appreciation of the general reputation of a well-ordered and adequately functioning medical organization, which we are glad to have this opportunity to thus call to the attention of like organizations of the State, as worthy of emulation. So, it is a pleasure for the editor of the journal to present to the readers this Norfolk Edition.

In doing so, we wish to express thanks to the contributors, to the officers of the Society, and to Dr. Frank Hancock, of Norfolk, for the ready co-operation given us in getting out the Norfolk number. Dr. Hancock deserves our especial thanks because of his efforts in securing the papers and for his patience and promptness in answering correspondence connected therewith. We have only one regret in connection with this issue, and that one comes from the fact that space is not sufficient to enable us to utilize all of the papers secured. The heavy charges and expenses attached to the purchase of paper and paying the printer's bill at this time, make it extremely necessary to carefully limit the expansion of the journal. While we believe that further enlargement and improvement will come in due time, for the present, it seems unwise to do more. For this reason, we could not avail ourselves of all of the papers offered.

Petersburg Meeting.

The next meeting of the Medical Society of Virginia will be held in the City of Petersburg in the last week of October next—the 26th to 29th, inclusive.

The Executive Council held its usual summer session in the executive offices of the Society in Richmond, on Thurday, June 24th, and fixed the date. There was present a committee from the Petersburg Medical Faculty, Dr. J. Bolling Jones, chairman. Every assurance was given that the coming meeting in Petersburg would be successful. The local committee is alive to the interests of the meeting.

Most satisfactory arrangements have been made for the meetings in the High School Building, recently completed, where every facility is offered for the accommodation of the Society. The building is equipped with a large auditorium with seating capacity for 1,000, and there are adjoining large assembly and class rooms which may be used for sections, committees, and the House of Delegates. Every comfort for the care of the visitors may be expected, as the local committee is making adequate arrangements. Let all the members of the Society plan their affairs now so as to come to the Petersburg meeting this fall.

Local societies throughout the State should, as promptly as possible, appoint their delegates to the House of Delegates for this meeting. Quoting from Article V, Section 1, of the By-Laws of the Society, "Each Component County Society shall be entitled to elect to the House of Delegates each year, one delegate and one alternate for each thirty-five members or major fraction thereof, provided that each Society shall be entitled to at least one delegate and one alternate." When these appointments are made, please at once notify the secretary-treasurer, G. H. Winfrey, at the Society's offices, 104½ West Grace Street, Richmond.

"S. O. S."

Members of the Society are again reminded that the Virginia Medical Monthly is now their property, and that the annual dues of four dollars, fixed at the last meeting of the Society, include the subscription price of the magazine. The Society faces the same conditions that confront all publishers—tremendous increases in the cost of print paper and printing. It is essential to the success of the magazine—your official organ—that members of the Medical Society of Virginia pay their annual dues promptly.

Business houses of Richmond, Norfolk, and other cities are supporting your magazine as never before, but this new support only takes care of increased costs. Your Publication Committee is steadily improving the journal, winning for it favorable comment which reflects great credit on the entire profession of the State.

To come back to our original point—you can no more run a magazine without money than you can an automobile without gasoline. Bills were mailed recently, and your check for the amount of your indebtedness to the Society is actually needed at this time. We are, of course, very grateful to the seven hundred members (out of nearly two thousand) who have paid up. We are holding in reserve the gratitude we hope to express to the nearly thirteen hundred members of the Society who are still indebted to their organization. If you have not already done so, please send in your check, made payable to the order of the Medical Society of Virginia.

G. H. Winfrey,
Secretary-Treasurer.

News Notes

The University of Virginia, Medical Department,

According to custom, held their final exercises for the 1920 class in conjunction with those of other departments of the University, on June 15. The number of graduates in medicine was one hundred per cent. of the senior medical class, and represented nine States and the District of Columbia.

Hospital appointments for the twenty-eight graduates were as follows:

University of Virginia Hospital, University—Drs. John B. Banks, Mt. Vernon, Ind.; Jas. N. Greear, Jr., St. Paul, Va.; Jos. Thos. Jones, Doe Hill, Va.; Frank McCutchan, Rogersville, Tenn.; William G. Moran, Jr., City Point, Va.; Henry B. Mulholland, Washington, D. C.; Hengry G. Preston, Fairmont, W. Va.; and Raymond M. Sloan, Alderson, W. Va.

Memorial Hospital, Orange, N. J.—Drs. Jos. F. Armstrong, Water Valley, Miss.; Sidney Jas. Harper, Jr., University; Berlin B. Nicholson, Jacksonville, Fla.

Johns Hopkins Hospital, Baltimore—Drs. Chas. Y. Bidgood, Wilmington, N. C., and Hunter Holmes McGuire, Richmond.

Kings County Hospital, New York—Drs. Wm. W. Hicks, Byhalia, Miss., and Lewis D. Hoppe, Jr., Marietta, Ga.

Staten Island Hospital, New York—Dr. W. Tilden Boland, Calhoun City, Miss.

Chester County Hospital, Westchester, Pa. —Dr. Glenn Calvin Campbell, Mill Gap, Va.

Postgraduate Hospital, New York—Dr.

Powell Garland Dillard, Lynchburg, Va.

Bellevue Hospital, New York—Dr. Richard W. Fowlkes, Danville, Va.

Greeneville Hospital, Greeneville, Tenn.—Dr. Claude P. Fox, Jr., Greeneville, Tenn.

Church Home Infirmary, Baltimore—Dr. Wm. A. H. Gantt, Wingina, Va.

Delaware Hospital, Wilmington, Del.—Dr. Seth Hunter Hurdle, Portsmouth, Va.

Birmingham Infirmary, Birmingham, Ala.—Dr. LeRoy T. Kincannon, Tupelo, Miss.

Northwestern General Hospital, Philadelphia, Pa.—Dr. Philip M. Lewis, University, Va.

Charity Hospital, New Orleans, La.—Dr. Felix E. Lindner, Oxford, Miss.

Stuart Circle Hospital, Richmond, Va.—Dr. Raymond A. Vondeleur, South Richmond, Va.

Southern Pacific General Hospital, San Francisco, Cal.—Dr. Kon Wyatt, East Auburn, Cal.

Instructor in Pathology, Medical Department, University of Va.—Dr. Clifton J. Reynolds, Long Island, Va.

University of Va., Alumni Association.

At the annual meeting of the Association, June 14, Dr. Hugh Young, Baltimore, Md., was elected first vice-president, and Dr. Wm. H. Goodwin, University, was elected to the executive committee of the Association.

Internes At Memorial Hospital, Richmond.

The following appointments have been made to the Resident Staff of the Memorial Hospital, Richmond, for the coming year:

Dr. Kent W. Jarvis, Chief Resident; graduate of Union University, 1917; internship at St. John's and Bellevue Hospitals; captain in Medical Corps.

Dr. C. L. Nance, graduate of Medical College of Virginia, 1919; formerly chief resident of Virginia Hospital.

Dr. James G. Lyerly, graduate of Medical College of Virginia, 1920, and served an undergraduate internship at Grace Hospital, Richmond.

Other appointments may be made later.

The National Research Council,

A co-operative organization of leading scientific and technical men of the country for the promotion of scientific research and the application and dissemination of scientific knowledge for the benefit of the national welfare, has elected the following officers for the year beginning July 1, 1920: Chairman, H. A. Bumstead, professor of physics and director of the Sloane physical laboratory, Yale University; First Vice-Chairman, C. D. Walcott, president of the National Academy of Sciences and Secretary of the Smithsonian Institution; Second Vice-Chairman, Gano Dunn, president of the J. G. White Engineering Corporation, New York; Third Vice-Chairman, R. A. Millikan, professor of physics, University of Chicago; Permanent Secretary, Vernon Kellogg, professor of biology, Stanford University; Treasurer, F. L. Ransome, treasurer of the National Academy of Sciences.

The Council was organized in 1916 under the auspices of the National Academy of Sciences to mobilize the scientific resources of America for work on war problems, and reorganized in 1918 by an executive order of the President on a permanent peace-time basis. Although co-operating with various government scientific bureaus, it is not controlled or supported by the government. It has recently received an endowment of $5,000,000 from the Cernegie Corporation, part of which is to be expended for the erection of a suitable building in Washington for the joint use of the Council and the National Academy of Sciences. Other gifts have been made to it for the carrying out of specific scientific researches under its direction.

Physical Education.

The lessons learned in the draft examinations of the world war have brought to the fore the subject of compusory physical education for both boys and girls. Thirteen States now have such laws. These are California, Delaware, Illinois, Maine, Maryland, Michigan, Nevada, New Jersey, New York, Oregon, Rhode Island, Utah and Washington. Indiana and Pennsylvania have adopteed measures which aim at this reform, but are not so effective as those of States above named, and North Carolina has appointed a director for this work. A number of other States have the queston under discussion.

Boys and girls from the country districts have been found to be as much in need of

this training as those from the cities. In examining for the army, the draftees from the country were not found to be in better physical condition than those from cities. The tests that obtained in these examinations were: "The registrant must be able to see well; have comparatively good bearing; his heart must be able to stand the test of physical exertion; and must be able to transport himself by walking as the exigencies of military life may demand." These qualifications are just as necessary for the man and woman in civil as in military life. Every State in the Union should pass laws which will look to developing its children physically as well as mentally.

For special information, address the National Physical Education Service, at its headquarters in Homer Building, 13th and F Sts., Washington, D. C.

Leprosy Treatment Apparently Successful.

For some years the belief has been gaining ground that leprosy could be cured, and encouraging progress was made by several investigators. The starting point for this study was the observation that now and then the course of the disease appeared to be favorably influenced by treatment with chaulmoogra oil. The treatment, however, was attended with many difficulties, and could not be carried out in all cases. At this point the U. S. Public Health Service enlisted the co-operation of Prof. L. E. Dean, head of the chemical department of the College of Hawaii, and president of the institution, suggesting that attempts be made either to isolate the active constituent of this drug, or to devise means for making its continued administration feasible. The latter has been accomplished by preparing what is known as an "ethyl ester" from the chaulmoogra oil. The treatment has been carried on at the Leprosy Investigation Station at Kalihi, Hawaii, the work being directed by Dr. J. T. McDonald, director of the station. The results of the treatment thus far have been so satsfactory that lepers come willingly for treatment, a recent inspection by Hawaiian health authorities failing to disclose a single secreted case of leprosy. Following a course of treatment, extending over about a year, 48 lepers, treated according to the new method, were paroled in October, 1919, and to now have remained free from disease. At the present time, the treatment has been administered only at the receiving station, but it is hoped to provide facilities for also treating lepers in the colony at Molokai.

Surgeon General Cumming announces that the lepers treated by the new method have been under observation for a considerable period, and that the decision as to apparent cure of each patient has been officially determined, not by officers of the Public Health Service, but by a special parole board, which alone has authority to discharge a patient from custody. The Public Health Service is now conducting a very careful study of the treatment, making detailed records of all the cases and taking photographs of the lesions once a month.

Kill The Plague Spreader—The Rat.

Surgeon General Hugh S. Cumming, of the Public Health Service, has urged communities throughout the country, and especially along the coast, to inaugurate rat-extermination and rat-proofing campaigns, as a means of removing the foci of plague infection now known to exist at New Orleans, Pensacola and Galveston, in this country, and at Vera Cruz and Tampico, Mexico. Bubonic plague is primarily a disease of rodents, especially rats, and can be effectively controlled by their extermination. We should also rid ourselves of them because of the tremendous economic damage they cause. Through the State Board of Health, the U. S. Public Health Service will co-operate with local health authorities and give expert advice as how best to carry on such work. In seaport cities, this work will be supplemented by bacteriological laboratory examinations to determine whether or not plague infection is present among the rodents.

It may be of interest to note that, from numerous surveys made by the U. S. Public Health Service, it is estimated there is at least one rat for every person in the United States. Like estimates have been made for Great Britain, Ireland, Denmark, France and Germany. The annual upkeep per rodent has been computed as $1.80 in Great Britain, $1,-20 in Denmark, and $1.00 in France. In the United States, the rate will probably exceed that of Great Britain. It is said to cost the United States $180,000,000 a year to support its rat population, exclusive of mice.

Write the U. S. Public Health Service, Washington, D. C., for a copy of their bulletin, "The Rat: Arguments for its Elimination and Methods for its Destruction."

The Danville (Va.) Health Department,

Under the direction of Dr. R. W. Garnett, health officer, is making headway in that city. Three Child Health Centers have been opened for the summer, with the idea to "Keep the Well Child Well." A trained nurse is constantly in attendance, and Drs. P. W. Miles, C. L. Bailey, C. B. Pritchett, I. C Harrison, W. B. Fowlkes, W. O. Lee, Samuel Newman, R. Bruce James, and J. H. Hawkins, Jr., are on hand for an hour apiece a week, to give prenatal advice, and instruction in the care of babies up to 2 years, and of children of 2 years and over.

The Dental Clinic for school children has been closed until the opening of the next session, but the Adenoid and Tonsil Clinic is to be continued during the greater portion of the summer. Recognizing the advantages of recreation and play in safeguarding the health of children, an appropriation of $2,500 was secured for recreation and organized play during the summer. Two playgrounds have been equipped and are in charge of a supervisor with two paid and several volunteer assistants.

Married—

Dr. Bernard Hewitt Kyle and Miss Putnam Watkins, both of Lynchburg, Va., June 16.

Dr. John Morehead Emmett, formerly of this city but now of Huntington, W. Va., and Miss Annie Cleveland Cone, of Richmond, June 16.

Dr. Charles Elroy Llewellyn, Richmond, of the class of '16, Medical College of Virginia, and Miss Pearl Ann Shield, Hampton, Va., June 12.

Dr. William Scarff Wiley and Miss Susan Elizabeth Brown, both of Bristol, Va., June 24.

Dr. Henry Walker Decker, of Lahore, Va., and Miss Florence Fraser Boston, Warrenton, Va., June 15. Dr. Decker, who is a graduate of the Medical College of Virginia in the class of '19, expects to leave in September for Shanghai, China, where he goes as a medical missionary.

Dr. Zack Perry Mitchell, of the class of '20, Medical College of Virginia, and Miss Ella Whitlock Taliaferro, of Richmond, June 9. They will make their home in Coleram, N. C.

Dr. Richard Wingfield Vaughan, class of '16, Medical College of Virginia, and Miss Margnerite Stoltz, both of this city, June 19.

Dr. J. Grady Booe,

Who has been one of the internes at Stuart Circle Hospital, Richmond, since his graduation from Medical College of Virginia, left the first of July for Bridgeport, Conn., where he will be one of the associate physicians at Galen Hospital.

French War Dead.

The total number of French soldiers lost during the world war, as recently officially announced, is 1,362,872. Of this number, details are unknown as to the fate of 361,854.

Willmington Hospital Suffers By Fire.

Fire originating in the operating room of the James Walker Memorial Hospital, Wilmington, N. C., on June 22, greatly damaged the building, and for a time threatened to destroy the structure. All patients were removed uninjured to a place of safety. The damage from fire and water will approximate $25,000.

University Of Rochester To Have Medical School.

Through the combined gifts of the Rockefeller General Education Board, which contributed $5,000,000, and George Eastman, of Rochester, who gave $4,000,000, the University of Rochester, Rochester, N. Y., is to have a $9,000,000 school of medicine, surgery and dentistry, including a 250-bed teaching hospital.

Northampton and Accomac Hospital

Is to be the name of the hospital to be erected at Nassawadox, on the Eastern Shore of Virginia. Dr. W. J. Sturgis, of Franktown, has contracted for its immediate erection, and it will cost about $75,000 without furniture and fixtures. It will be four stories in height, with forty feet frontage and running back 128 feet.

Dr. B. O. Edwards

Announces the opening of his office and laboratory at 15 Haywood Street, Asheville, N. C., where he will limit his practice to the diagnosis and treatment of tuberculosis.

Dr. C. C. Coleman,

Richmond, announces that he has limited his practice to Surgery of the Head, Neck and Nervous System. As a part of Surgery of the Head, Oral Surgery and Surgery of the Face will be included.

Dr. Coleman will continue to fill the position of Professor of Oral Surgery in the Medical College of Virginia.

Department Of Anesthesia In Two Medical Schools.

The National Anesthesia Research Society announces that the University of Maryland, which several years ago created a separate department of anesthesia, with Dr. S. Griffith Davis as associate professor, has now realized the importance of this branch and made Dr. Davis a full professor in the school.

Tulane University, New Orleans, which for a number of years has had a branch devoted entirely to anesthesia under the irection of Dr. Carroll W. Allen, has this year given a full professorship to the doctor, in charge.

The American Pediatric Society,

At its annual meeting recently held in Highland Park, Ill., elected Dr. John Howland, Baltimore, president, and re-elected Dr. Howard Childs Carpenter, Philadelphia, secretary.

Lynchburg Rotarians Go To Atlantic City.

Among the members of the Lynchburg Rotary Club attending the International convention in Atlantic City, June 21-25, were Drs. A. W. Terrell and James Morrison.

Dr. Charles V. Carrington,

Richmond, has beeen visiting relatives and friends in Pittsylvania County, Va.

Dr. A. M. Brent,

Heathsville, Va., was a recent visitor in Baltimore, Md., having gone there on professional business.

Dr. James H. Culpepper,

Of Norfolk, Va., was a visitor in Richmond early in June, having come to take part in the Middle Atlantic Golf Association Tournament.

Dr. and Mrs. F. N. Mallory,

Lawrenceville, Va., were recent visitors in Richmond for a short stay.

The North Atlantic Tuberculosis Conference,

A divisional conference of the National Tuberculosis Association, is to meet in Richmond, October 7 and 8, with headquarters at the Jefferson Hotel. For information with regard to this meeting, address Mr. Paul L. Benjamin 400-3 Professional Building, Philadelphia.

Richmond Has Two Maternal Clinics.

Two maternal clinics have been established by the City Bureau of Health in conjunction with the Instructive Visiting Nurses' Association—one in the east and one in the west end of the city. Two obstetricians will be in charge, with two nurses to aid in the work. The clinics will be equipped with the latest approved instruments for all necessary examinations.

Dr. C. E. Conduff,

Of Roanoke, Va., is in Chicago, where he is taking a special medical course.

Dr. Charles M. Edwards

Will on August the first move his offices and residence to 2607 Grove Avenue, this city.

Dr. and Mrs. J. A. Riffe,

Who have been located at Clifton Forge, Va., for several years, have gone to Covington, Va., where they will now make their home.

Dr. R. Finley Gayle, Jr.,

Has returned to his home in this city, after a visit to his parents in Urbanna, Va.

Dr. and Mrs. Horace Hoskins,

Of Saluda, Va., recently enjoyed a pleasant visit to Ocean City, Md. On their return trip, they stopped for a short stay in West Point, Va.

Dr. Edgar W. Young,

Formerly of McKenney, Va., is now located in Petersburg, Va.

The Southern Railway Surgeons' Association,

At their annual meeting, held in Washington, D. C., June 2, elected Dr. William A. Applegate, Washington, D. C., president, and selected Mobile, Ala., for their next place of meeting.

Gift To New York Academy Of Medicine.

Dr. Abraham Jacobi, who died last July and whose estate has just been appraised, gave $5,000 cash and books amounting to about $4,500 to the New York Academy of Medicine.

Dr. Edwin Wheeler Buckingham, Jr.,

Lynchburg, Va., has been appointed a medical missionary to China for the Southern Presbyterian Church, and will sail for the field of his labors early in October. He was a graduate of the Medical College of Virginia in the class of '18, and served in the navy during the war, receiving the rank of lieutenant, senior grade.

Dr. J. W. Henson,

Richmond, announces that after June 10, he will be in his office at 103 Professional Building from 12 to 1 P. M. and by appointment, and will be in his office at his residence, 405 North Allen Avenue, from 6 to 7 P. M. Hours on Sunday will be by appointment.

Dr. and Mrs. J. Allison Hodges,

Of Richmond, are spending the month of July at "Drowsy Waters," their summer cottage near Montreat, North Carolina.

Too Much Smallpox In Virginia.

The fact that the death rate from smallpox is comparatively small has made the public generally too careless as to vaccination and local officials too lax in requiring general inoculation against the disease. During the first four months of 1920, there were reported in Virginia 1,821 cases, with six deaths, against 770 reported cases for the same period in 1919 and ten deaths for the entire year. During April of this year, smallpox was reported in 34 of the 100 counties in the State. Southwest Virginia has had the bulk of the cases, with Wise County in the lead. Surely the above figures should impress upon all doctors and health officials the urgent need of enforcing laws for vaccination against smallpox.

Dr. J. C. Rutrough,

Who, upon completing a general post-graduate course at the New York Post-Graduate Medical School and Hospital, located temporarily at Shawsville, Va., during the last influenza epidemic, has located permanently at Blacksburg, Va.

Psychiatric Social Workers Wanted.

The U. S. Public Health Service has appealed to the American Red Cross to begin a national campaign for volunteers to be trained as psychiatric social workers among the 50,000 World War veterans suffering from nervous and mental diseases in Public Health Service hospital. Nearly 200 additional workers will be needed before fall to care for such cases. In accordance with this request, the Red Cross seeks volunteers for these positions at salaries ranging from $1,500 to $2,100 a year, offering summer school courses, on a scholarship if necessary, to provide trained workers for fall. For full information, address American Red Cross, 44 East 23rd Street, New York City.

To Take Legal Steps To Secure Birth Returns.

The State Registrar of Vital Statistics, Dr. W. A. Plecker, has decided to take drastic action against physicians and midwives who persistently fail to comply with the law requiring the report of each birth to the proper local registrar within ten days after such birth. These reports are necessary to enable county health officers and nurses to take prompt measures to assist mothers, and to carry on child welfare work, in addition to keeping up records of the State office.

To correct this dereliction, the same measures will be adopted in Virginia as have been found effective in other States, and names of those failing to report cases in required time will be turned over to the Commonwealth's Attorney for action.

Dr. W. W. Hargrave,

Lieutenant commander in the U. S. Navy, on the ship Columbia, has been on a visit to his old home in West Point, Va.

Dr. Dean B. Cole,

Who has been medical director of the Virginia Tuberculosis Association, with headquarters in Richmond, left the Association the last of June and has gone to Bellevue Hospital, New York City, to take up special work in diagnosis.

The Richmond Urological Club,

Organized in April of this year, is composed of the physicians connected with the urological department of the Medical College of Virginia and of those in this city who confine their work to urology. Dr. Robert C. Bryan is chairman, Dr. Lawrence T. Price vice-chairman, and Dr. A. I. Dodson secretary.

Dr. J. W. Bowdoin,

Bloxom, Va., was among those who attended the hearing given by the Biological Survey on the migratory bird treaty act, held at Cosmos Club, Washington, D. C., June 21 and 22.

Dr. L. E. Stubbs,

Formerly of Gloucester, Va., is now located in Newport News, Va.

Dr. Wm. L. Gannaway,

Until recently of Abingdon, Va., has located in Kingsport, Tenn.

The State Board of Medical Examiners,

Meeting in Richmond, the latter part of June, had up for examination 65 applicants, one of whom was a woman. There were no colored applicants. There were, in addition to the above, twenty who applied by reciprocity to practice in this State.

Dr. D. L. Elder,

Mayor-elect of Hopewell, Va., has tendered his resignation as coroner of that city, and Dr. J. N. Elder has been appointed to fill the vacancy.

Dr. and Mrs. I. Keith Briggs,

South Boston, Va., are among those who have recently been motoring through the Valley of Virginia and were registered in Winchester, Va.

The American Surgical Association,

At its meeting this spring, under the presidency of Dr. George E. Brewer, of New York, elected Dr. John B. Roberts, of Philadelphia, president, and decided to hold its next annual meeting in Toronto.

The American Public Health Association

Is to hold its forty-ninth annual meeting in San Francisco, September 13 to 17, inclusive, under the presidency of Dr. W. S. Rankin, secretary of the North Carolina State Board of Health. The secretary is A. W. Hedrich, of Boston, Mass.

Infant Mortality Rates Lower In Many Large Cities.

According to reports just made public by the Bureau of Census, infant mortality rate (for children under 1 year of age per 1,000 live births) in 1919 compared with the four preceding years are most encouraging. The largest decrease was shown at Lackawanna N. Y., where there is an infant home. In this city there were 74 infant deaths less in 1918 than in 1915. Four of the larger Eastern cities showed the following decreases in infant mortality per 1,000 births: New York, 18.2; Philadelphia, 12.5; Baltimore, 19.7; and Washington, 23.4.

Homeopathic School Receives Gift.

The Board of Trustees of the Ohio State University College of Homeopathic Medicine, at Columbus, announced the middle of June, that Chas. F. Kettering, a Dayton manufacturer and a member of their Board, had made the school a gift of $400,000 for medical research work.

Dr. E. L. Flanagan,

Formerly field director in charge of health work in Fairfax County, Virginia, for the State Board of Health, and since February, health officer of that county, has tendered his resignation, effective July 15, and will reenter private practice, making his home in Richmond.

Dr. Howard Urbach,

Of Richmond, was elected physician of the Maccabees, at their State convention held in Lynchburg, in June.

Colored People Of Richmond To Build Hospital.

The colored people of this city have launched a movement to raise $150,000 for the erection of a hospital, where physicians of their race will compose the visiting staff of the hospital. It is proposed to erect this hospital as a memorial to colored men who served in the world war.

St. Philip's Hospital.

Opening of St. Philip's Hospital, in this city, has been delayed until September, owing to the fact that supplies have been held up This hospital, owned and to be operated by the Medical College of Virginia, is for colored people only. Colored women will also be trained to do the nursing in St. Philip's Hospital.

Dr. E. R. Miller,

Harrisonburg, Va., was elected president of the Virginia State Sunday School Association, at its annual convention recently held in Harrisonburg.

Government Withdraws Support For Social Disease Clinics.

Failure of Congress to make appropriation for the campaign against social diseases has resulted in the closing of several of these clinics in Virginia. So much progress had been made in checking the spread of these diseases since opening the clinics, that the Health Department of Richmond hopes to continue the work so long as funds are available.

Mobile Loses Medical School.

Decisions returned by the Supreme Court of Alabama have dissolved the injunction recently issued by the circuit judge of Mobile, restraining the trustees of the University of Alabama from removing the medical department of that institution from Mobile.

Red Cross Roll Call.

The fourth Red Cross Roll Call will be held from Armistice Day, November 11, to Thanksgiving Day, November 25, next. Hereafter, every anniversary of the end of hostilities in the World War will be the occasion for the American public to renew their Red Cross allegiance through dollar memberships. This money will be used to further the gigantic peace time activities of the American Red Cross.

British To Have Dental Clinics.

The British government, having recently awakened to the deplorable condition of the average Englishman's teeth, has determined, through its Ministry of Health, to establish dental clinics in all parts of the kingdom, and will spend more than $250,000,000 on this work.

The Modern Hospital Publishing Company

Announces the removal of its editorial and business offices to the Modern Hospital Building, 22-24 East Ontario Street, Chicago, Ill.

The Modern Hospital Building, which is only a few blocks from the building long occupied by the American Medical Association, and very near the new home of the American College of Surgeons, will house not only offices of The Modern Hospital, Modern Hospital Year Book, and Modern Medicine, but also national headquarters of the American Hospital Association, and the National Catholic Welfare Council. It will thus be a center of national hospital, health and welfare activities.

Dr. E. C. Bryce

Announces the opening of his office at 603 East Grace Street, this city. His practice will be limited to Ear, Nose and Throat, Direct Bronchoscopy and Laryngoscopy.

Hospitals are Supported by Lotteries.

In the Dominican Republic, all the hospitals are supported by lotteries. Evidently the lottery busines has not been over flourishing, for some of the hospitals are running at one-third of their capacity, according to the medical survey of that country recently made by the American Red Cross, which is going to help to clean up the country. Medical facilities have been totally inadequate, there being only one physician for every 8,700 people. Twelve dispensaries for the treatment of venereal diseases have been established by the Red Cross, which plans to send enough equipment to bring the Municipal Hospital in Santo Domingo City up to standard, and will pay the salaries of a chief nurse and assistant for a year or so, that they may start a training school for native nurses. A doctor will also be sent to administer the little hospital in the town of Seybo, in the Southeastern Province, for a year. A donation of $2,400 will be made to the Dominican Chapter of the Red Cross for the maintenance of this hospital.

Road-building, sanitation and education are the most important needs of the country. When it came under the military government of the United States, there were only 5,000 children in schools; now there are 100,000.

United States Blind Population.

The 1910 census reported 57,272 blind persons in the United States. A special follow-up schedule conducted by the Bureau of Census showed that 4,463 of those reported blind by enummerators were not blind. Returns from 29,242 blind persons gave both parents blind in 31 cases; one parent blind in 1,042 cases; neither parent blind in 27,580 cases; no return made as to vision of parents in 489 cases.

Another Sanatorium For Tuberculous Soldiers.

The magnificent tuberculosis sanatorium heretofore operated by the Army authorities at Fort Bayard, New Mexico, has just been transferred to the U. S. Public Health Service and will soon be available for treating discharged disabled soldiers. It is splendidly located, not far from Silver City, and conveniently accessible on the Santa Fe Railroad. The climate permits outdoor life for a large part of the year.

The Fort Bayard Sanatorium will provide the Public Health Service with 1,000 additional beds, and will treat only ambulatory cases of tuberculosis, in which the prognosis is favorable. Patients for the new sanatorium will probably be drawn principally from the middle and southwest sections of the country, as experience has shown that removal of patients far from their homes often has an unfavorable effect.

Japan Again Visited by "Flu."

It is announced that influenza has again appeared in Japan in epidemic form. The total number of cases reported since it first broke out last year is 2,285,000 with 119,000 deaths.

Typhus and Cholera In Poland A Menace to United States.

Owing to the fact that Polish emigration to the United States is increasing daily, the incidence of typhus and cholera in Poland is considered a grave danger to the United States. Maj. Gen. Rupert Blue, who was sent to Europe to investigate health conditions, has cabled Washington that additional surgeons should be placed at northern European ports to inspect all third-class passengers for America, as a means of checking the importation of these diseases to this country.

Obituary Record.

Dr. George E. Meredith,

A well known physician of King William County, Va., died at his home in Lanesville, June 9, shortly after suffering a stroke of paralysis. His widow and small son survive him. Dr. Meredith was fifty-six years of age and received his diploma in medicine from the University of Maryland, Baltimore, in 1886.

Major-General William C. Gorgas,

Former surgeon-general of the U. S. Army, died July 4, in London, England, as the result of a stroke of apoplexy, complicated with Bright's disease. He was in London, preparatory to going to West Africa in behalf of the British government to investigate sanitary conditions. His wife and several American officers were with General Gorgas during his illness. His body is to be brought to this country on an American transport.

General Gorgas was born in Mobile, Ala., October 3, 1854, was graduated in medicine from Bellevue Hospital Medical College in 1879, and entered the medical service of the U. S. Army in 1880. He was appointed surgeon-general of the U. S. Army March 4, 1915. As a boy, he spent a short time in this city, while his father, a Confederate general, was chief of the Confederate ordnance office in Richmond. He was one of the world's greatest sanitarians and authorities in military medicine and surgery. His work in the Canal Zone against yellow fever made possible the completion of the canal, and his crusade against this and other plagues will make his name one always to be remembered in the history of medicine. Shortly before starting for West Africa, he had returned from a medical mission to Central and South America. Modern medicine has suffered a great loss in hs death.

Early in his illness, General Gorgas was visited by King George, who conferred upon him the Order of Knighthood in recognition of his great medical services to the world. The funeral was held at St. Paul's Cathedral, London, July 9, at noon, with full military honors. The services were arranged by the Royal Society of Medicine, and were attended by a delegation from this society, representatives of King George and the royal family, and of the British and American armies and navies.

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Original Communications

GASTRIC AND DUODENAL ULCER. (Etiology and Diagnosis.)*

By GEO. P. HAMNER, M. D., Lynchburg, Va.

Etiology.—This is a subject upon which one may wander far afield, advancing many of his own theories as well as those of the great number of research workers in this field, and no one can gainsay him; for the true cause of gastric and duodenal ulcer is not yet definitely known.

The now almost ancient theory of abrasion, or trauma with consequent partial digestion of the gastric mucous membrane, has been superceded by the infection theory, which, I admit, is alluring and popular. But one hesitates to believe and concede that the foci of infection in teeth, tonsils, gall-bladder, appendix, prostate, and elsewhere can in themselves, primarily, serve as the genesis of a process which later will become a chronic ulcer, or that the removal of any one of these foci will effectually cure a chronic ulcer of the stomach or duodenum.

Another popular and pet theory among internists recently evolved as an important etiological factor in the production of chronic ulcer is that of mechanically delayed emptying time. And Hamburger, of Chicago, claims to have verified this theory in the successful treatment of chronic ulcer in man by the relief of his motor insufficiency as the first and paramount procedure in the treatment.

The Mayos attribute a large percentage of gastric and duodenal ulcers to chronic appendices and other sources of toxemia from the intestinal tract.

Persistent hyperchlorhydria as a chief causative factor, together with deficient mucous secretion and devitalizing anaemia, still maintain a popular following.

There is this one point that we may feel secure in advancing; that both anaemia and toxemia are true factors in delayed healing; but, as to the true cause of acute and chronic gastric and duodenal ulcers, it is not known and, after all has been said, I feel it would be appropriate here to reiterate the expression of a noted but eccentric T. B. specialist from our own Southland upon the occasion of his attendance at a meeting of the National Tuberculosis Congress in Washington, D. C., some years ago. After listening for hours to many long, learned and technical discussions upon that disease and its various phases, he arose and said, "This is all d—n foolishness," and took his seat.

Diagnosis.—I feel that here, gentlemen, we may get somewhere. Ulcers are best divided into two heads: acute and chronic; and let us classify both as gastric ulcers; pre-pyloric and post-pyloric rather than as gastric and duodenal, for, as to ulcers in close proximity to the pyloric ring, whether proximal or distal, no distinct line can or need be drawn. The so-called duodenal ulcer is actually a post-pyloric gastric lesion, for in 95 per cent. of all such cases it occupies the "first portion of the duodenum," embryologically and anatomically an integral part of the stomach.

I believe that only acute ulcers are diagnosed as such in those cases in which appreciable visible hemorrhages occur; and that is the case in about one-half of the lesions.

Greene, in his medical diagnosis, makes a subdivision of acute ulcer, in his marginal note into "Frank" cases and "Obscure" cases, and states that in the positive diagnosis of acute or subacute gastric ulcer we still think

* Read at the South Piedmont Medical Society, in Danville, Va., April 20, 1920.

of the four old, original and classic symptoms: pain, localized tenderness, nausea and vomiting, and hemorrhage; yet in most instances we meet cases which lack these franker symptoms wholly or in part. Personally, I believe that this is true in nearly all acute ulcers, save the hemorrhage, and that it is only in subacute ulcers; and more markedly in chronic ulcer you get the other symptoms named, and in the order named.

Under obscure cases, Greene further states that a large proportion demand the careful balancing and analysis of a large number of factors which may be strongly suggestive individually, or only collectively significant, and fatal perforation or hemorrhage may occur in cases which have previously lacked the symptoms necessary to even a tentative diagnosis.

Pain is undoubtedly the most dominating and persistent of the determining factors in the physical diagnosis of subacute and chronic ulcers, with its characteristic intermittent and paroxysmal nature; its relation to the taking of special kinds of food: its time of occurrence; its periodicity in the individual.

Other factors are of some importance in differential diagnosis, and amongst these are: The tendency of the pain or distress to increase its intensity as the attack progresses; the immediate relief, complete or decided, afforded by involuntary or more frequently by induced vomiting.

It is well to remember that any actual abdominal pain which occurs day after day in several weeks in the same region is most suggestive of an organic lesion of the stomach, duodenum, appendix, or gall-bladder, though relaxed hernial openings or umbilical hernias must not be entirely overlooked.

If this pain observes a certain schedule with relation to its appearance in the particular individual under observation, varying only with the size of the meal taken and coming on more rapidly after light than after heavy meals, it is most suggestive of ulcer of the stomach or duodenum. If the appetite is well preserved or ravenous, the significance is even greater, although the same elements may be present in certain functional disorders. Mere discomfort, a "faint feeling," a "gone sensation," a "sense of fulness," or "choking," must not be construed as ulcer symptoms, save in the presence of strong corroborative evidence.

Pain is not, as a rule, immediate, but usually becomes severe and even cramp-like in from half an hour to two to three hours after eating the ordinary meal and continues until the stomach is emptied by vomiting, lavage, or by the natural mechanisms.

Delayed pain (one, two or three hours) is far more common than was formerly believed and immediate pain the exception. Immediate pain usually means a lesion of the œsophagus rather than the cardia. The onset of the pain is in large measure dependent upon the location of the ulcer, and its intensity upon one or more of several factors: peristalsis, spasm, acidity, character of the ingesta, irritability, congestion, inflammation and pyloric patency.

The pain itself varies greatly in character and degree. In its typical form it is a boring, deep-seated pain, but is also described by the patient as burning, stabbing, cutting or cramp-like, quite frequently felt at the back, sometimes radiating upward to the region of the shoulder blades. This typical pain is often replaced by that of a duller character, and a suggestive feature, when present, is the relief or intensification of pain accompanying changes in attitude both in the presence and absence of adhesions.

Ulcer pain may be increased in standing or walking, and lessened in the dorsal recumbent position, but often intensified when the left lateral decubitus is assumed. If markedly intensified by standing, walking or deep breathing, it suggests peritoneal involvement with perigastritis or adhesions and sometimes an impending perforation.

Bourget states that whether an ulcer be gastric or duodenal, the nearer it is to the pyloric ring the more intense is the pain. Both the character of the pain and the area of tenderness are relatively fixed and show little variation even when the attacks recur over long periods. In some instances, distress almost

immediately following the ingestion of very hot, cold, or acid substances is significant. Professor Francis W. Palfrey, of Harvard, who was chief of the Medical Staff at U. S. A. Base Hospital, Camp Green, during the World War, resorted to bismuth subnitrate or soda to determine the cause of the pain. If bismuth administered ad. lib. relieves it, he assumes that it is due to acidity, but if this fails and soda does relieve the pain, he assumes that it is due to gas distention. *For more get relief from belladonna than bismuth or soda.*

In certain cases, especially those of chronic ulcer with hypersecretion, we find, in addition, persistent pain of a duller character between meals, and especially at night, which is relieved by taking food (hunger pain). Much stress has been laid upon the occurrence of such pain in ulcer cases, but in a mild form it is one of the common symptoms observed in various forms of even functional dyspepsia and particularly that associated with visceroptosis.

The location of the pain necessarily varies somewhat with the position of the stomach, being, as a rule, lower in tightly laced women or in cases of ectasia or gastroptosis than under ordinary conditions.

Greene tells us that five-sixths of the stomach lies to the left of the linea alba, and most ulcers are upon the lesser curvature, therefore one usually finds the pain at or, more commonly, just to the left of the median line, between the ensiform and the umbilicus, usually near or nearer the former.

Localized Tenderness.—The importance of this sign lies in the fact that a distinctly circumscribed area is sometimes present in which is superficial, or less often, deep tenderness and defensive rigidity, often extreme, and this usually corresponds closely to the area of maximal pain. It is commonly epigastric, but is a trifle to the left of the median line and, when localized, contrasts sharply with the tenderness of gastric hyperesthesia which is usually much more diffused.

Greene further states that "about one-third of the active cases show a sharply localized area of superficial or deep dorsal tenderness, often extreme, slightly to the left of the lower dorsal spines (3 to 4 Cm.)." Personally, I have been able to elicit this symptom in a far smaller per cent. of cases than Greene mentions; and, by way of paraphrasing, he adds: "These areas seem to be associated with lesions at or near the pylorus, but they are far from constant, or pathognomonic."

Hemorrhage.—Visible hemorrhage occurs in about one-half of recognized cases of acute ulcer and, if massive, is always associated with a vomiting attack, usually subsequent to the pain crisis, if this be present. It commonly occurs several hours after eating and often at night, and is easily recognized as of gastric origin; but the smaller hemorrhages rapidly undergo such digestive changes as to closely simulate the small dark clots or coffee-ground particles of carcinoma. And we must not forget that severe or even fatal hematemesis may be due to gastric erosion or hepatic cirrhosis as well as ulcer. In many instances of acute ulcer (15 or 20 per cent.), according to Greene, it constitutes the first Decided symptom.

The stools should be diligently examined for blood in all suspected ulcer cases, but, unless properly done, the information thus obtained is of very little value. All food that contains red blood corpuscles should be interdicted for three days before the stool to be examined is obtained.

Nausea and Vomiting.—Though often coincident with a painful crisis, spontaneous vomiting with or without hemorrhage is far from constant, and self-induced vomiting is more often seen. If present, vomiting usually occurs at the acme of pain and relieves or greatly modifies it.

Persistently recurrent vomiting of a Definitely Periodic type is strongly suggestive of ulcer, either acute or chronic, but will usually be associated with other corroborative symptoms, viz., localized tenderness, visible hemorrhage in the acute, and less frequently in the chronic form, and in the latter especially with hypersecretion or hyperacidity. There is a distinct difference in the vomiting of anorexia

nervosa or mere cyclic vomiting, which is quite without the delay of that of ulcer, appendicitis or gall-bladder disease, with respect to food ingestion, the return usually being more like regurgitation. As possible causes, the crises of locomotor ataxia and the possible presence of incomplete hernia should be borne in mind.

The Rehfuss Tube.—Fractional test meal analysis after the method evolved by Martin Rehfuss, of Philadelphia, about half a dozen years ago, has been found by those who have adopted it to furnish far more valuable data in the diagnosis of gastro-intestinal ulcers than the old method known as the Ewald single meal method. In the Rehfuss method the meal consists of three soda crackers and eight ounces of water. The tube is introduced a few minutes after the meal is taken and, beginning fifteen minutes afterward, about six or eight Cc. are drawn every fifteen minutes for two or two and a half hours and each drawing titrated separately for free hydrochloric, total acid, and lactic acid; also tests for bile and mucus are made at the same time. The residue from each drawing is subjected to the benzidine-barium dioxide test for occult blood. Any visible blood present is, of course, also noted. The findings are charted on cards ruled for the purpose and become a part of the patient's permanent record.

Rehfuss claims to have obtained important information as to the location of the ulcer by observing, in a number of cases, the curve of the hydrochloric acid shown by the individual titrations. If the HCl began fairly low and rose rapidly to abnormal at the expiration of from one to one and one-half hours and then dropped in the same degree, he assumed that the ulcer was pre-pyloric, but if the acidity rose gradually and remained high to near the two-hour period and then dropped gradually to near normal, or in other cases remained high throughout, the ulcer was post-pyloric. Personally, I have found this to be of material aid in determining the location of the lesion and consider it quite reliable, though not pathognomonic, as a simple hyperchlorhydria without complications is capable of producing the same findings.

The Einhorn string test has proven valuable to me in establishing both the presence of a lesion and its probable location, though I do not consider it necessary to attach the gold bucket used by Einhorn, but modify the method by attaching an ordinary glass bead to the silk string to be swallowed. I would emphasize the point, though, that the string should be No. 5 or 7 braided silk, *never twisted silk*. Einhorn measures from the incisor teeth to the blood stain on the string and calculates the different distances from the knot at the teeth to show the relative location of the ulcer. He states in his paper entitled "Further Experiences with the String Test," in the Journal A. M. A., November 15, 1919, that the distance from the teeth to the pylorus is on an average 22 inches and assumes that a blood stain 16 inches from the teeth points to an ulcer at the cardia; 17½ to 21½ inches, ulcer of the lesser curvature; 22 to 22 1/3 inches, ulcer at the pylorus; and 22½ and more, in the duodenum. As there is quite a difference in length of the œsophagus in different individuals, I have found it more correct to reverse Einhorn's method and measure from the bile stain on the string, which shows that the bead has actually entered the duodenum and received the stain from the bile as it emerged from the common duct. It seems to me that a blood stain at a given distance from the definite bile stain is much more accurate than taking the distance from the teeth. Again, there is no definite way of determining if the bead or bucket had entered the duodenum unless there is a bile stain on the string, and, in cases of mechanical obstruction at the pylorus, hour glass stomach, or even ptosis, dilatation or hypomotility, the bead will often fail to go out of the stomach, but will travel around in the stomach, and the string may become doubled on itself and therefore very little information would be derived. If the bead enters the duodenum and there are found two definite blood stains near each other on the string, they usually indicate the size of the

ulcer. But there may be a very long brownish discoloration for a great distance which need not necessarily correspond to the size of the ulcer, but can be accounted for by different parts of the thread coming in contact with the ulcer successively during the migration of the bead through the pylorus. Of course, a careful study of the stools in suspected ulcer cases for blood should never be neglected. The aid of the roentgenologist should also be sought and a close comparison of data and co-operation established between him and the internist, for, after all the data possible is obtained, the internist who makes a positive diagnosis and can be satisfied beyond a doubt in his mind of a gastric ulcer, either pre- or post-pyloric, when it has never manifested itself by an appreciable visible hemorrhage, may well be proud of his accomplishment.

207 *Wall Building.*

ROENTGEN DIAGNOSIS OF GASTRIC AND DUODENAL ULCERS.*

By HUNTER B. SPENCER, M. D., Lynchburg, Va.

In a discussion of the diagnosis of gastric and duodenal ulcers by the aid of the X-ray, it will be necessary to consider briefly a number of signs or evidences which are equally applicable to other conditions.

W. J. Mayo has made the statement that only about one person in ten with gastric symptoms has a gastric lesion. VanderHoof reports one thousand cases referred for "digestive disturbances" and shows 12.3% having a lesion of the stomach or duodenum. Groover and Christie, of Washington, report 1,300 cases referred for X-ray examination of the gastro-intestinal tract in which they found a lesion of the stomach or duodenum in 12 per cent. of cases. Cabot reports in a study of something like 16,000 cases of so-called "dyspepsia" about 17 per cent. with a lesion in either stomach or duodenum.

From these reports we should not be discouraged if the roentgenologist fails to find a lesion in a majority of the cases referred for "stomach examination." To this we might further add that there is an error of omission or a failure of detection when actually present amounting to between 5 per cent. and 10 per cent.

To avoid this latter condition and increase the number of correct diagnoses I most strongly urge a close co-operation between the roentgenologist and the gastro-enterologist or clinician, as there is no question that the clinical examination and history in these cases is often invaluable as an aid to making the correct diagnosis. At times we may see in the fluoroscope, or have evidence on the plates, what is definitely abnormal, yet this might apply equally to any one of several conditions.

When a patient is referred, it is my custom to get as complete a history as possible, and frequently there are symptoms which suggest the advisability of studying other organs as well. Groover, in his report just referred to, found 15 per cent. of his cases were not gastro-intestinal at all, but the lesion was in the chest. *Only six* cases in 1,300 showed both gastro-intestinal and lung lesions.

In studying the stomach with the X-ray we should note with particular care the following points: Size, shape, position, contour, peristalsis, ability to empty and time required, the manner in which the meal passes through the esophagus and enters the stomach, the manner in which it leaves the stomach and enters the duodenum; last, but not least, we should note any tender point on pressure over any part of stomach or duodenum.

Size.—The stomach may be either dilated or contracted. *Dilatation* is usually due to either atony or to obstruction at the pylorus. Atony is more often evidenced by an elongation, while obstruction shows also a widening of the stomach. *Contraction* is seen after old ulceration or may be due to infiltration by new growths.

The Shape and Position of the stomach are influenced by the physique of the patient. A long drain trap or fish-hook type of stomach, with its lower border dipping down to a level of the sacro-iliac joint, is not unusual but rather expected in thin individuals, while in

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stout persons we expect a stomach lying crosswise of the abdomen, high up, and in shape somewhat like a cow-horn. Any position can hardly be called abnormal for that particular person unless it interferes with the functions of the stomach itself or some neighboring organ, or is displaced by adhesions or an extrinsic growth.

Abnormalities in Contour would cause us to consider ulcer, cancer, spasmodic contraction, tumors from without, adhesions to stomach wall, syphilis, and pressure from gas in the colon, which is frequently noted.

Peristalsis may be normal, too active, too slow, irregular, or may fail to affect some portion of the stomach wall. Hyperperistalsis is seen in both gastric and duodenal ulcer, obstruction at the pylorus, whether spasmodic or organic, hyperthyroidism (this accompanied by rapid emptying). Lack of peristalsis is seen in atony, also in dilatation due to late stage of pyloric obstruction. Irregular peristalsis, sometimes slow and at others fast, is seen occasionally in various conditions. When an area of the stomach wall fails to participate in peristalsis, it is due to the presence of either an ulcer, cancer, or syphilis.

Inability of the stomach to empty itself in proper time is due to either obstruction or atony. Care should be taken to see that patient does not take any additional food during time of estimating this test. When failure to empty normally is due to pyloric obstruction its origin may be either organic or spasmodic. Organic causes are ulcer, cancer or adhesions. Pylorospasm is reflex and may be caused by gastric ulcer, not close to pylorus, gall bladder disease, appendicitis, ileac stasis and other conditions. In making this test I give the patient two glasses of buttermilk containing barium and, after making the necessary examinations at the time, have them eat a normal breakfast—because I believe we more nearly get the accurate motility of the stomach by giving what it is accustomed to; six hours later I examine to see if stomach is empty and gather any additional information desired.

Food Retention.—Carman in reporting an examination of 950 cases of various abdominal conditions shows 109 gastric ulcers, retention in 54; 268 duodenal ulcers, retention in 81.

Tender Point.—The patient is requested to place a finger on any tender point in the abdomen and it is noted through the fluoroscope whether it is actually over stomach or duodenum. In addition it is well to use gentle pressure over any suspected area to see if it elicits pain.

Manner of entrance is noted to detect cardiospasm or actual obstruction at cardiac orifice. *Manner of* meal *leaving* stomach may sometimes suggest the presence or absence of a lesion.

It has been necessary to mention these points in more or less detail in order to better discuss the lesions which are our subject for today.

There are several definite signs of Gastric Ulcer and a number which are more or less corroborative.

The Niche, which is in reality the crater of a penetrating ulcer lying entirely in the wall of the stomach, becomes filled with barium and is visible as a slight projection from the lumen of the stomach.

The Accessory Pocket, which is formed by a perforating ulcer being walled off by inflammatory tissues, is usually noted as somewhat larger than the niche, also by the fact that one can detect a layer of barium at its lower level with a small bubble of gas at its top. Retention of barium in this pocket is usually noted at end of six hours, sometimes much longer.

Area of Induration caused by chronic indurated ulcer is evidenced by the fact of the failure of the peristaltic waves to affect a limited area of the stomach wall. (This sign is also seen in cancer and syphilis.)

The secondary signs on which we must at times rely, in conjunction with clinical evidence, to diagnose these conditions, may be mentioned as follows:

The Incisura is an indentation in the stomach wall, of variable depth, opposite an ulcer, due to irritation of the ulcer causing a con-

traction of the circular muscle fibres. However, it may occur as a result of cicatrization in an old healed ulcer. It is usually seen on the greater curvature, sometimes sufficient to cause hour-glass stomach.

Spasm, usually noted at the pylorus, may be due to an ulcer at any point in the stomach-wall and often produces a very peculiar filling effect.

Six Hour Residue amounting to an eighth or more is seen in about 50 per cent. of cases of gastric ulcer, but is also noted in chronic appendicitis, gall bladder disease, duodenal ulcer, gastric cancer, etc. The factors influencing a residue in gastric ulcer are pylorospasm, impaired peristalsis, hypotonus, hour-glass contraction—one or more frequently being present.

A Loss of Tone of stomach and an Acutely Flexed or fish-hook type are frequently associated with gastric ulcer.

Peristalsis may be weak, hyper-, irregular, or at times anti-, varying according to location of the lesion and other accompanying conditions.

Tender Point to be of value should be circumscribed and may sometimes be elicited opposite an incisura when the niche is not demonstrable.

A Small Flake of barium is sometimes noted retained in the stomach, a slight coating as it were on a superficial or slit-like ulcer. Care should be taken to be positive that this is actually in the stomach, and other corroborative evidences should be present for it to be of value.

Gastric ulcers with a niche more than 3 cm. in diameter are likely to be carcinomatous. Duodenal ulcers accompany gastric ulcers in about 15 per cent. of cases.

From a Roentgen standpoint, as well as histologically, the first portion of the duodenum (where the great majority of duodenal ulcers occur) is practically a portion of the stomach and is, of course, studied in conjunction with all stomach examinations.

The most important sign of Duodenal Ulcer is a persistent deformity of its outline. However, we must remember that there are other conditions which can cause this same appearance, e. g., spasm-reflex from gall-bladder or appendix, adhesions, cancer of head of pancreas, etc. Care must be taken not to mistake an incompletely filled cap for a deformed one. Spasm due to extrinsic causes can usually be eliminated by the administration of full doses of belladonna. By taking a large number of views of this portion and by re-examination on another day, we will often find some variation in the deformity or at least one completely filled cap. Adhesions are practically always due to ulcer of the duodenum or to gall-bladder disease, sometimes impossible to differentiate by X-ray alone.

The deformity seen in the cap is frequently out of proportion to the area of the ulcer and is considered due to spasm of muscle fibres in the wall similar to that seen opposite the niche in gastric ulcer. We may occasionally see a niche in the duodenal type of ulcer and at times see one of a perforating type with evidence similar to that noted with gastric ulcer. In order to get the duodenum to fill properly, it is frequently necessary to examine the patient in a number of different positions, standing, lying, on face, oblique, etc. In any event, when we find a deformity, for it to be of value and count as positive evidence, we must show it in the same place a number of times without a single normal outline in the entire examination of this region.

Other signs which are suggestive and corroborative when taken in conjunction with the clinical evidence and will often lead to a correct diagnosis are hyperperistalsis, hypermotility, gastro-spasm, localized tender point over the duodenum, six hour retention, etc. Having just taken up these evidences in connection with gastric ulcer, it will not be necessary to discuss them further.

818 *Church Street.*

Porter on Pullman—"The nex' stop is you' station. Shall I brush you off now?"

Passenger—"No, that is not necessary. When the train stops, I'll step off."—Selected.

THE DIAGNOSTIC VALUE OF EAR EXAMINATIONS BY THE TURNING AND DOUCHING TESTS.*

By C. R. DUFOUR, Phar. D., M. D., Washington, D. C.
Emeritus Clinical Professor Ophthalmology and Otology, Medical Department, Georgetown University.

The relation of the ear to the central nervous system, now termed neuro-otology, opens up a new field in physiology and diagnosis. It consists of an analysis of the internal ear and its associated pathways to the brain. It is an etologic study which has proven to be a valuable diagnostic method in the routine examinations of patients, both from a medical and surgical standpoint. The examination of the inner ear, by the methods to be described, is just as important, if not more so, in furnishing valuable information concerning intracranial conditions, as are the eye examinations for the same purpose. In fact, information is often obtained from the ear examinations that cannot be obtained from any other method. This newer branch of otology from which we obtain so much valuable information is the examination of that part of the ear which presides over the equilibrium of the body.

The ear by many has been considered as an organ of hearing only, and no thought was ever given to the intimate relations between it and the intracranial contents. The inner ear is divided into two parts; the cochlea, which presides over tone perception, and the labyrinth, which consists of the three semicircular canals, the utricle and saccule, and which presides over the equilibrium of the body. The labyrinth connects very intimately with many nerve centers which affect the entire body. Stimulation of the vestibular labyrinth produces certain known phenomena which, when produced, demonstrate that the nerve pathways to certain centres are intact. When normal responses are absent, it indicates an impairment of those nerve pathways somewhere along the line. The nerve fibres from the labyrinth unite into one common bundle to form the 8th nerve. At the entrance of the 8th nerve into the medulla, the nerve fibres again divide into two main trunks, the auditory and the vestibular. After entering the medulla, the vestibular portion of the 8th nerve divides into two tracts, viz., fibres from the horizontal canals and fibres from the vertical canals. The fibres from the horizontal canals divide into two tracts. One of these goes to Deiters' nucleus, thence to the posterior longitudinal bundle which is situated in the median line along the posterior aspect of the medulla and pons. This is the vestibulo-ocular tract, and impulses along this tract result in nystagmus. The other division goes to the cerebellum through the inferior cerebellar peduncle and is distributed to the three cerebellar nuclei. Impulses along this line and its further continuation to the cerebral cortex cause vertigo. The superior and posterior canals are called the vertical canals. The nerve fibres from them enter the medulla but, instead of going backwards to Deiters' nucleus, these fibres extend upwards along the brain stem in a course external to the posterior longitudinal bundle. At a point in the upper half of the pons there is a branching of the nerve into two arms, one of which enters the posterior longitudinal bundle. This is the vestibulo-ocular tract of the vertical canals. Impulses along this tract, result in nystagmus. The other arm directly enters the cerebellum through the middle cerebellar peduncle and is distributed to the three cerebellar nuclei. Impulses along this tract and its further continuation to the cerebrum, result in vertigo. The fibres from the posterior longitudinal bundle in the horizontal canals continue to the 6th nucleus of the 6th nerve, and cause a contraction of the external rectus muscle of the right eye, and to the 3rd nucleus through the 3rd nerve producing contraction of the internal rectus muscle of the left eye. This occurs when the current of endolymph is away from the ampulla in the right horizontal canal. When the current is toward the ampulla, the fibres in the right horizontal canals continue from the posterior longitudinal bundle to the 3rd nucleus of the right side and the 6th nucleus of the left side, causing a contraction of the internal rectus of the right eye and the external rectus of the left eye. This is the conjugate deviation of the eyes, not the nystagmus. The quick movements of the eyes in the opposite direction is

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called the nystagmus. This is caused by a counter stimulation of the opposite nuclei, viz., the 3rd and 6th nuclei, respectively. The fibres of the vertical canals go from the posterior longitudinal bundle and continue to the 4th nucleus on the right and the 3rd nucleus on the left, when the current is away from the ampulla, causing a contraction of the superior oblique muscle on the right and the inferior oblique on the left, causing a rotary nystagmus to the left. When the current is toward the ampulla the 4th nucleus of the left and the 3rd nucleus of the right are stimulated, causing a rotary nystagmus to the right. The outward pointing center for the shoulder is believed to be located in the interior portion of the quadrangular lobes, and the inward pointing center is located in the posterior portion of the quadrangular lobes.

Experiments on a person on whom extensive decompression had been done showed that after chilling of the superior and inferior semilunar lobes, past pointing was absent, while before chilling they would past point to the right. It was further noted that after chilling of the biventral lobe of the right cerebellar hemisphere, the right arm would not past point inward, after such stimulation as should make it past point inward. It was therefore concluded that the outward pointing center for the shoulder is located in the semilunar lobe, and the inner pointing center of the shoulder is located in the biventral lobe. The clinical application of this would be that when stimulation of the ear by the tests mentioned fails to produce past pointing, say of the right arm to the right, it would suggest some disturbance of the outward pointing center in the right cerebellar hemisphere. Should the right arm fail to past point to the left, there would be some disturbance of the inward pointing center of the right cerebellar hemisphere.

To recapitulate, the fibres from the horizontal semicircular canal, after entering the brain stem, have a separate and distinct pathway from the fibres of the vertical semicircular canals. The fibres from the vertical canals ascend into the pons. The fibres from the horizontal canals enter Deiters' nucleus and continue through the inferior cerebellar peduncle into the cerebellum itself. The fibres conveying impulses to the eyes are distinct and separate from those conveying impulses producing vertigo. The fibres producing vertigo, go through the cerebellum en route to the cerebrum. Dr. Jones says that, of 38 cases in which the labyrinths and 8th nerves were normal and the horizontal canals gave normal reactions, the vertical canals failed to produce the well-known responses, thus proving there is a central differentiation of the fibres of the horizontal canals and of the vertical canals. The outward pointing center for the shoulder is located in the semilunar lobe, and the inner pointing center of the shoulder is located in the biventral lobe. The chair used for the ear stimulation tests is a modification of another make. This modified chair was devised by Dr. I. H. Jones, of Philadelphia, and is the one adopted by the U. S. Government for testing those applying for service in the aviation corps. It is made to turn very smoothly, with headrests to place the head in the different positions. It is also made with a foot-stop, so that the patient can be immediately stopped after the proper number of turnings.

The turning test is made by placing a person in the chair with his head inclined forward 30%, which brings the horizontal canals in a horizontal plane. Eyes are to be closed. He is then turned 10 times in 20 seconds, the chair is then stopped. He is then told to open his eyes. In a normal subject there should occur a nystagmus of from 16 to 36 seconds' duration. If the patient was turned to the right the nystagmus will be to the left, horizontal in character. A stop watch must be used, and the second the chair is stopped the watch must be started, and stopped immediately the nystagmus has subsided, and the time noted, which I have said is 26 seconds, allowing 10 seconds, more or less, thus making the time either 16 or 36 seconds. The patient is then turned to the left and the same process gone through with. Strict record must be made of the findings. Do not trust to your memory. The turning draws the eyes in the direction of the turning, which constitutes the vestibular pull; the cerebral pull causes the eyes to move quickly in the opposite direction, which movement constitutes the

nystagmus. If the patient was turned to the right the vestibular pull would be to the right and the cerebral pull would be to the left, therefore we would say nystagmus to the left.

The vertical canals are then tested by placing the patient's head 60° backward and turning him 10 times in 20 seconds, eyes closed until chair is stopped, when the eyes are opened. There should occur a rotary nystagmus to the right if the turning was to the right, and vice versa if turned to the left. Two turnings should be done, one to the right and one to the left, with head in position to test the horizontal canals; and two turns, one to the right and one to the left, with head in position to test the vertical canals.

The cause of ocular nystagmus can most always be determined by an eye examination. It is in those cases where the lesion does not lie so near the surface that the ear tests are so essential. Two babies were brought to the University of Pennsylvania, each having an oscillatory nystagmus. The ophthalmologist could find nothing wrong in the eyes to account for it. The ear tests showed a great difference between the two cases. In one, the ear tests showed an irritation of the vestibulo-ocular tracts, but no organic impairment; the prognosis was good. The other showed an organic block of the vestibulo-ocular tract of both sides of the brain stem; the prognosis was bad. The first case made a complete recovery; the other one died. The reason for the prognosis was that in the first case the ear stimulation caused a change from an oscillatory nystagmus into a definite rhythmic pull in the proper direction which showed there was no organic block of the pathways. The other case was unaffected by the ear stimulation, which showed that there was an organic block of both pathways from both ears to the eyes. This demonstrates that all cases of nystagmus should be subjected to the ear tests so as to determine the cause or site of the lesion.

The Past Pointing Test. The patient sits in the chair, eyes closed. His finger is placed upon the examiner's finger. He is told to raise his arm above his shoulder, bring it down and touch the examiner's finger with his finger. A normal subject can touch the examiner's almost every time. The patient is then turned 10 times in 10 seconds, eyes closed, and, when chair is stopped, his finger is immediately seized and placed upon examiner's finger. He is told to raise his arm up and bring it down and touch the finger of the examiner. A normal subject will past point about 12 inches to the right with right arm, and 10 inches to the right with the left arm. One arm is examined after the other until the past pointing ceases. For the falling test, patient is placed with head forward 120° and turned 5 times in 10 seconds, eyes closed. If turned to the right, he will fall to the right when he sits up, and when turned to the left, head forward 120°, when he sits up, will fall to the left. This position tests the vertical canals. In making the caloric test, the patient's head is placed forward 30° and water at the temperature of 68° is allowed to flow into the ear from a height of about 3 feet, through a tube having a cut-off. The water is allowed to run into the ear until the eyes jerk or the patient says he is dizzy. The time from the beginning of the douching to the time he says he is dizzy, or the nystagmus appears, must be accurately measured by a stop-watch, the usual length of time for this to occur being 40 seconds. The head should then be immediately placed 60° backward, eyes closed, and the pointing test made. The caloric test should be made on both ears. Previous to this test being made, the external canal should be examined to find out if the drum membrane is intact and that there is no impaction of cerumen.

In these tests the eyes are drawn in the direction of the endolymph movement; the quick recovery in the opposite direction constitutes the nystagmus. The past pointing and the falling are also in the direction of the endolymph movement in the semicircular canals. Until one becomes familiar with the fundamental physiology of the labyrinth sufficiently to know in which direction the endolymph is moving in any of the tests, an easy way is to remember, if turning to right with head upright or douching ear with head upright, everything is to the right: if turning to left or douching left ear with head upright, everything is to the left.

It must be remembered that the turning is to detect the nystagmus and its duration, also the vertigo produced by it. The caloric or douching test is to detect how long it takes to produce the nystagmus or vertigo. Because of the fact that both ears are stimulated by the turning, the movement of the endolymph is more violent and the nystagmus, vertigo, past pointing and falling are more pronounced than they are in the caloric test. Then, again, the stimulus of the turning ceases sooner than that from the douching. As soon as the chair is stopped the endolymph movement is still at its height, while the stimulus from the caloric continues for about two minutes. The sensation of vertigo after ear stimulation is due to the movement of the hair cells in the labyrinth. The hair cells are moved by the endolymphic current, produced either by turning a person in a revolving chair or douching the ears with either hot or cold water.

It is impossible for me to go into all the details and exceptions, because this subject is extensive and my time is short. These tests are not severe and seldom any unpleasant sensation follows them. Occasionally, there will be some nausea and perhaps vomiting. We have seen that vertigo can be produced in a person with a normal labyrinth, by turning him in a revolving chair. When a vertigo occurs independent of the turning, there is a disturbed relationship of one's own body to surrounding objects. It is a general manifestation of a disturbance perceived in a definite part of the brain, just as sight and hearing are perceived in a definite part of the brain. If a pathologic condition does not affect the inner ear or its nerve pathways, there will be no vertigo. When the labyrinth and intracranial pathways are normal we are able to maintain our position in space with ease and comfort. Cases of vertigo applying to the physician for relief should have as careful attention as fevers or other forms of illness. There should be no snap diagnosis as to its cause. Vertigo can be produced by lesions affecting the intracranial pathways, by ocular disturbance, by cardiovascular disease, by toxaemias from any organ or part of the body, but these conditions must affect the labyrinth to produce vertigo. Ocular conditions can produce vertigo, so when the ear tests fail to show normal conditions of the inner ear, the eyes should be examined. Remember there is a direct connection from the semicircular canals and the eye muscles.

The value of ear examination in differential diagnosis between lesion in the ear and of the brain is best illustrated by reciting two cases reported by Dr. I. H. Jones.

A man was seized with vertigo, nausea and vomiting, and had to be kept in bed for 10 days, when his vertigo gradually diminished. He was totally deaf in his right ear. This appeared to be a typical picture of Menier's disease, a sudden hemorrhage into the inner ear, yet the ear tests showed it to be a beginning tumour in the right cerebello-pontile angle, from which the patient died in 7 months.

The other case was a woman, aged 44 years, who had difficulty in walking, severe attacks of vertigo, nausea, and projectile vomiting. The neurologic consultants made a diagnosis of a tumor in the right cerebellar hemisphere, the X-ray report stating that it was a cyst in the right cerebellar hemisphere. The surgeon was about to operate, but did not because the ear examination suggested that the lesion was in the labyrinth and that the cerebellum appeared normal. The past pointing after ear stimulation was normal, both arms past pointed properly to the right and to the left. The patient recovered without operation and has since given birth to a healthy baby, and is in good health two and a half years since.

These cases show that the vestibular apparatus can be definitely analyzed by means of the ear tests. They will show normal or abnormal conditions. If in a case of vertigo the responses are normal, we probably have a functional neurosis, an ocular disturbance or an evanescent toxaemia, the source of which must be sought. These tests may not find out everything, but will be of great value and will bring order out of chaos.

A differential diagnosis can usually be made between peripheral and central lesions by means of the ear tests, but on certain general principles. A proportionate impairment of responses usually indicates a peripheral lesion, i. e., say one-third normal vertigo in horizontal canals and the same in the vertical canals. This applies also to nystagmus, which

may result from an impairment of the cochlear function and of the semicircular canals. A central lesion is suggested by a normal cochlea, but impaired or non-responsive semicircular canals; normal responses from the horizontal, but impaired or absent responses from the vertical canals; a normal vertical canal and impaired horizontal; a normal vertigo or a normal nystagmus from one set of semicircular canals and an impaired or non-response in the other set; a normal vertigo and nystagmus from any canal, but impaired past pointing in any direction from any one extremity. If stimulation of any one of the semicircular canals produces a perverted nystagmus or an inverse nystagmus, it is pathognomonic of a central lesion.

For example, douching the right ear with cold water, with head back, which stimulates the right horizontal canal, should produce a pure horizontal nystagmus to the left. If there should occur a vertical nystagmus, a rotary, oblique or mixed, it is spoken of as perverted; if the nystagmus should be to the right, it is inverse. Neither a perverted or inverse nystagmus can possibly be produced by a lesion of the labyrinth or 8th nerve. A peripheral lesion produces a poor nystagmus or none, but an absolutely false response demonstrates a central lesion. A conjugate deviation of the eyes, instead of a nystagmus, is pathognomonic of a central lesion. It often happens that the ear test is of great aid in diagnosis in obscure cases. The following case was reported by Dr. I. H. Jones: An apparently strong, vigorous man, complaining only of headache, showed upon examination that both internal ears were normal, and that both 8th nerves were normal, and yet the vertical semicircular canals of both ears, when stimulated, failed to produce any responses. The horizontal canals produced normal nystagmus, but no vertigo. This examination seemed to indicate pressure within the 4th ventricle. This conclusion was recorded with some misgiving because of the man's apparent health. That night he became unconscious and was taken to a hospital. An examination failed to give any clue to an organic lesion and, as he had regained consciousness, a diagnosis of hysteria was made. Three days later he died, and an autopsy showed an abscess in the 4th ventricle. These ear tests are of the utmost value in such cases, because they give information that cannot be obtained by the usual neurologic tests.

In making an examination of a case, we should determine whether it is functional or an organic lesion. Should the responses not be normal upon stimulation of the ear, an organic lesion should be suspected. This would be true should the deviation from normal not include all of the responses; even should there be an impairment of only one response, it would probably show that there was an organic lesion. Having concluded it to be an organic lesion of the vestibular apparatus, we should proceed to find out if it is a peripheral or a central lesion. In a peripheral lesion all the responses are impaired and, conversely, the presence of any on normal response to stimulation suggests a normal labyrinth and eighth nerve. A spontaneous nystagmus in the vertical plane, either upward or downward, indicates a central lesion. If there is a perverted nystagmus, the lesion is probably central. If the conclusion is reached that the lesion is a central one, its location within the brain must be found, if possible. With a careful systemic examination this can be done, if it is located in that part of the brain to which the nerve pathways from the vestibule travel. Dr. Jones says that just as in neurology a certain group of symptoms occurring with a definite lesion are spoken of as the "symptom complex" for that lesion, in the same way, a constant group of phenomena always appearing on ear stimulation in a certain lesion, may be regarded as the phenomenon-complex.

For that reason the following should be remembered: If the results of stimulation of right ear are: nystagmus, none; vertigo, none; past pointing and falling none, it indicates a destruction of the right labyrinth. There would be complete deafness of this ear.

If stimulation of right horizontal canal produces: nystagmus, none: vertigo, normal; past pointing, normal; falling, normal; it suggests a lesion in the medulla oblongata, between Deiters' nucleus, and the posterior longitudinal bundle, on the right side.

If stimulation of the right horizontal canal produces: nystagmus, normal; vertigo, none; past pointing, none; falling, none; it suggests a lesion of the right inferior cerebellar peduncle.

If stimulation of the right vertical canals produces: nystagmus, none; vertigo, normal; past pointing, normal; falling, normal; it suggests a lesion in the posterior portion of the pons, near the posterior longitudinal bundle, on right side.

If stimulation of the right vertical canals produces: nystagmus, normal; vertigo, none; past pointing, none; falling, none; it suggests a lesion of the right middle cerebellar peduncle.

If stimulation of the horizontal and of the vertical canals of both ears produces: nystagmus, none; vertigo, normal; past pointing, normal; falling, normal; it suggests a lesion of the posterior longitudinal bundle.

If stimulation of the right horizontal canal and also of the right vertical canals produces: nystagmus, normal; vertigo, none; past pointing, none; falling, none; it suggests a lesion of the right cerebellar nuclei.

If stimulation of all the semicircular canals of both ears produces: nystagmus, normal; vertigo, none; past pointing, none; falling, none; it suggests a lesion at the base of the cerebral crura at the point of decussation of the two superior cerebellar peduncles.

If there is total deafness in the right ear, and stimulation of the right horizontal canal and of the right and left vertical canals produces: nystagmus, none; vertigo, none; past pointing, none; falling, none; and stimulation of the left horizontal canal produces normal reactions, the lesion is located in the right cerebello-pontile angle.

I have only given a very brief summary of this branch of neuro-otology. Like all diagneses, the lesions do not all fit absolutely into the schemata just given. All symptoms must be considered in their relation to other symptoms, and that lesion postulated which will best explain the completed picture. In these aural examinations, relative values must be given to the various findings before a conclusion is reached.

In conclusion, let me state the following case, reported by Dr. Jones, in which the autopsy definitely proves the findings by the vestibular tests:

A young woman, admitted to University of Pennsylvania Hospital, complains of staggering and blind spells. Trouble dated three years prior to her admission. She first noticed she would become dizzy when dancing, later she noticed she could not walk in a straight line. Had noises in her ears. Three months ago the blind spells became worse. No headache or vomiting. Low grade of optic neuritis in both eyes, with concentric contraction of both gelds. Rotary nystagmus to left. X-ray examination, negative. Examination of vestibular apparatus: normal hearing on left, and total deafness right. Spontaneous eye movements were not the same in both eyes. Nystagmus more marked in right than in left; this could not be produced by a labyrinthine lesion. Turning to right produced a horizontal nystagmus in proper direction, indicating the ability of the end organ to generate normal impulses. Normal past pointing would therefore be expected. Instead, the left arm failed to past point to the right and the right arm failed to past point to the left. In other words, the past pointing with both arms is outward, no matter what the direction of the turning. Such past pointing is explicable only on the basis of a central lesion. Douching the left ear with cold water produced a perverted nystagmus, indicating a brain stem lesion.

A salient feature of this examination is the total absence of all responses from the right side, which indicates a peripheral destruction of the right ear or all of its pathways For a central lesion to involve the peripheral ear pathways, it must be situated in the cerebello-pontile angle where the 8th nerve enters the stem.

The autopsy showed that anterior to the right cerebellar region there was an egg-shaped mass measuring 5x4½x3 c. m., same color as rest of brain, firm, definitely capsulated and apparently not attached to the cerebellum. The right cerebellar lobe had lost most of its characteristics. It was somewhat soft, with indistinct striations. The microscope showed it to be a glioma. The hypophysis was normal.

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921 *Fifteenth Street, Northwest.*

TECHNIQUE FOR ENUCLEATION OF TONSILS WITH LOCAL ANESTHESIA; REPORT OF TWO INTERESTING CASES WITH PLEASING RESULTS.*

By ELBYRNE G. GILL, M. D., Roanoke, Va.

Before describing the technique of the operation, we will briefly mention the determining factors in deciding whether the operation shall be done under local or general anesthesia. Every case is a law unto itself, and no hard and fast rule will apply to all cases. The age of the patient is obviously a deciding factor. We do not attempt local anesthesia on patients under fourteen years of age. Patients of an extremely nervous temperament, with sensitive throats that gag easily, should have a general anesthetic, providing their physical condition will permit. A patient should not be persuaded against his will to have a local anesthetic.

Our experience and observations convince us that a large percentage of adult patients—probably 90 per cent.—can have their tonsils removed successfully and without pain under local anesthesia. This view is contrary to that of some of the leading laryngologists in this country. Crowe, of Johns Hopkins, says a complete tonsillectomy can only be done under general anesthesia. He is unquestionably wrong. Coakley, of New York, also advocates general anesthetic in all cases, while Lille, of the Mayo Clinic, and Gatewood, of New York, are advocates of local anesthesia.

Local anesthesia certainly possesses many distinct advantages over general anesthesia, both to the patient and operator. The patient is not subjected to the risk of contracting an ether or septic pneumonia; he is not nauseated following the operation, and the shock is much less. The operator has the advantage of working in the natural position and with better illumination. The performance of the operation under local anesthesia requires a simpler technique, though a greater degree of dexterity, than under general anesthesia.

Before describing the technique of the operation, we wish to say a word in regard to the methods of examining tonsils. The problem of properly examining tonsils has been foremost in our minds for sometime. We do not believe that there is any special examination required of the internist and general practitioner which is performed in a more perfunctory manner than the examination of tonsils. It is the "silent intruder" that confronts the internist, for when a patient comes direct to the throat specialist, he usually comes with his diagnosis "pinned on him," as he has subjective symptoms of the source of his trouble. We feel that it is the duty of the throat specialist in every community to instruct the internist and general practitioner in the proper procedure for an intelligent examination of the tonsils. Not infrequently patients come under our observation with definite clinical symptoms which point to a focus of infection. When getting the history, they will say, "My tonsils are O. K., as my physician told me so." When inquiring as to how the physician made his diagnosis, the patient's reply is that "he looked at my tonsils." Here we wish to emphasize the fact that the size of the tonsil or the absence of a history of tonsillitis does not have any bearing on the condition of the tonsil, and in no way eliminates the tonsil as a focus of infection.

We use the Hurd tonsil evacuator for examination of tonsils. It consists of a glass canula with an opening large enough to fit the tonsil. The canula is about 12 inches long, and is slightly curved near the opening. It is connected to a small rubber bulb by a piece of rubber tubing about 12 inches long. To use the evacuator have the patient open his mouth, compress the rubber bulb firmly, then place the opening of the glass canula over the tonsil, and, at the same time, release the grip on the rubber bulb. The suction thus produced draws the tonsil up into the mouth of the glass, and if any pus or "cheesy material" is in the tonsil it will readily be seen.

With patients having definite symptoms which are referable to a focus of infection, and where all other examinations are negative, and no evidence of infection is revealed by use

* Read at the meeting of the Medical Society of Virginia, in Richmond, October 28-31, 1919.

of the evacuator, we take a culture from each tonsil before deciding that the tonsils are not diseased. This is done by first applying alcohol to the outer surface of the tonsil to prevent surface contamination, then a sterile platinum wire is introduced into the crypts or substance proper of the tonsil, and then streak the culture media with the platinum point and incubate to see if a growth is present. If we get a pure culture, we feel that our technique was properly carried out.

To our minds, it is just as important for the internist to be able to discover the presence of pus in the silent tonsil as it is for him to make an early diagnosis of carcinoma of the stomach or incipient pulmonary tuberculosis.

Having decided that the operation is to be done under local anesthesia, we send the patient to the *hospital always*. In case the patient refuses to go to the hospital, we refuse to operate elsewhere. Every case, whether operated upon under local or general anesthesia, is given a careful physical examination, including a record of his blood pressure and a *blood coagulation test*.

Twenty minutes prior to the operation the patient is given a hypo. of morphia sulphate, grs. 1/6, with atropine sulphate, grs. 1/180. This is given while the patient is in his room. At the end of twenty minutes the patient is brought to the operating room on a carriage and is placed on the operating table in a semi-reclining position. A small amount of 10 per cent. cocaine on a cotton applicator is applied on the anterior two-thirds of the tongue and the outer surface of the tonsils. Care is taken not to permit the cocaine to run down on the posterior pharyngeal wall.

A solution of 1 per cent. novocaine or procaine 4 drachms containing 10 minims of 1-1000 adrenalin chloride is prepared. This should suffice for both tonsils. We use the Gatewood needle, which is a long straight one, for injecting. We first inject the base of the tonsil deeply, as this is the most sensitive part. We then make one injection between the posterior pillar and the tonsil, one at the superior pole of the tonsil going between the tonsillar tissue and the mucous membrane of the plica triangularis. The fourth and last injection is between the anterior pillar and the tonsil, care being exercised to never injure the pillars when injecting. The right tonsil is injected first, and the left in a similar manner. As soon as we are through injecting the left tonsil, the right one is anesthetized sufficiently for us to begin work.

The Operation.

The right tonsil is grasped with curved, narrow-bladed mouse-tooth scissor-handled forcep, whose blades are about two inches long. One of the most important steps in the operation is to secure a firm and secure grasp on the tonsil. This is best done by firmly planting the upper blade of the forceps into the capsule, just below the superior angle of the converging pillars, and the lower blade of the forceps is inserted to the same depth, seizing the inferior flexion of the capsule, and then lock the handles. Traction is made on the handle of the forceps, thus pulling the tonsil up and out. Then, with a sharp-pointed but blunt tapering edge scissors in the right hand, we make a small niche at the junction of the tonsillar capsule with the converging pillars at the superior angle, then insert the closed ends of the scissor-blades into the opening thus made and separate the posterior pillar carefully and completely from the capsule of the tonsil, then with the blades of the scissors opened, the right blade of the scissors is carried around the anterior surface of the tonsil, thus separating the mucous membrane of the anterior pillar from the capsule of the tonsil. Now evert the tonsil, and if it is not lifted from the fossa, the dissection can be completed by placing the Hurd tonsil separator behind the capsule of the superior pole and gently lifting the tonsil up, making firm traction on the tonsil forceps at the same time. After completing the dissection, the pedicle of the tonsil is snared off with the Tyding snare. The left tonsil is removed in a similar manner. The right tonsil is grasped with the forceps in the right hand and the left tonsil with forceps in the left hand.

As a rule, the patient does not lose more than a drachm of blood from both tonsils. The hemorrhage, if any, is controlled by making gentle pressure with a very soft sponge, leaving the sponge in the fossa for three minutes, which is the time required for blood to coagulate. We rarely, if ever, find it necessary to clamp a bleeding point and have not yet been forced to tie off a vessel.

We cannot condemn too strongly the attempt on the part of some operators to do the spectacular, or so-called bloodless, tonsil operation, which is done by seizing every oozing point with an artery clamp. This procedure is not necessary to control the hemorrhage, and, besides, it produces unwarranted traumatism in the throat, and always leaves an eschar.

After all oozing has stopped and remained so for at least five minutes, we then apply a small amout of a 3½ per cent. idodine solution to each tonsillar fossa. Now the patient is placed on the carriage and rolled back to his room. The ice bag is immediately applied to the patient's neck. The patient is kept on his back for at least twenty-four hours and, in some instances, longer. Three hours following the operation the patient is given a hypo. of morphia sulphate, grs. 1/8, whether he is in pain or not, for it serves to keep the patient quiet and restful, thus relieving the constant fear of hemorrhage, which most patients possess following the operation.

Since adopting the above mentioned technique, and the strict routine of operating on all cases in the hospital, we have been fortunate enough not to have a single post-operative hemorrhage in a series of sixty cases. Not once have we resorted to the use of the artery clamp for the control of hemorrhage. However, we do not wish for anyone to assume that we will not in the future have post-operative hemorrhages, but what we wish to emphasize is that our hemorrhage cases have been reduced to the extreme minimum by following the described technique, and by carefully examining our cases before operating. We wish also to lay particular stress on the importance of taking the blood pressure and doing a blood coagulation test in all cases.

We cannot possibly register our disapproval too strongly of the practice of some operators in operating on patients in their office and then permitting the patient to go to his home or hospital under the care of a relative or friend who is not trained to care for the patient should a complication arise, which is highly probable.

So much has been written, and so much evidence has been successfully adduced to show that the tonsils may serve as a portal of entry for general infections, such as arthritis, cardiac, and renal conditions, etc., that the mere narration of cases will be useless, though we wish to report two cases of unusual interest.

Harry K., aged 24, came under our observation August 18, 1919, and gave the following history: Two years ago patient became hoarse gradually. Hoarseness was worse during winter months. No history of syphilis or T. B. Slight cough at times. Has been in the U. S. Army in France for past two years. Has gained weight during past year. Special examination. Nose O. K. Sinuses O. K. Tonsils ragged in appearance, and pus escaped from each tonsil when the Hurd tonsil evacuator was applied. The vocal cords were red and inflamed and beefy in appearance. Mucous membranes of trachea red and inflamed. Tonsillectomy was advised and was performed under local anesthesia August 18, 1919. The patient returned to his home in the country August 23, and was instructed to return in a month for further observation. To my pleasant surprise the patient walked into my office six weeks later with a voice as clear as that of a Metropolitan Opera singer. The contrast was most striking, as the patient could scarcely speak above a whisper when first seen, and had been that way for nearly two years.

William S., aged 35, came under our observation September 1, 1919, and gave the following history. Three years ago had incipient pulmonary T. B. Has lived an outdoor life since, and the pulmonary lesion was promptly arrested. Complains now of a "hacking" feel-

ing in throat. Went to a lung specialist recently for examination on account of having night sweats and a tired feeling all of the time. No active lesion was present in the lungs. He was advised by the lung specialist to have his tonsils examined. Special examination revealed hypertrophic rhinitis, tonsils small and submerged. Cheesy material escaped from each tonsil when the Hurd tonsil evacuator was applied. The patient stated that for the past two years he has been forced to get up two or four times each night to change his night gown on account of the profuse night sweats. The patient's special examination was negative other than the diseased tonsils. Tonsillectomy was advised and performed September 6, 1919, under local anesthesia. Two months after the operation patient had not had a night sweat since his tonsils were removed.

Two very striking points are to be noted in these cases: First, neither gave a history of tonsillitis; second, both had passed through the hands of several physicians before attention was directed to the tonsils as being the exciting cause of their trouble.

612 *MacBain Building.*

THE THEORY AND PRACTICE OF AUTOGENOUS VACCINES.*

By E. C. L. MILLER, M. D., Richmond, Va.

The use of autogenous vaccines is based on two assumptions—first, that we have the germ that is really causing the trouble; and, second, that by the use of a vaccine made from this germ effective immunity can be produced.

As to the first assumption, how often are we sure we have the causative organism? The clinical man usually depends on the laboratory men to find the germ for him. How much pains do we take to prove that we have the causative organism? Could we prove it if we tried, in many cases? If, in our cultures, we laboratory men pick up a streptococcus, with glee we assume that we have the causative organism, or, in cystitis or pyelitis, if we find a colon germ we assume that it is the cause, and so on.

We really know so little about causative organisms. Cholera and plague have been endemic in certain parts of the Orient for ages. Occasionally they break over these bounds and flow around the world in a great pandemic. Why? In this recent pandemic of influenza, hundreds of men have worked assiduously to find the causative organism and still we know nothing about it, unless perchance it was caused by a multiplicity of organisms. At the recent meeting of the pathologists and bacteriologists in New York, Dr. Park spoke of a circumscribed epidemic of dysentery that occurred somewhere north of New York, and which he studied with care. There were about one thousand cases and the dysentery bacilli isolated from these cases were about half of the Shiga type and half of the Flexner type. Dr. Cecil told of an epidemic of pneumonia which killed about three hundred guinea-pigs for him in about three weeks. He carefully studied the causative organisms and found in most cases either type one or type two, with a few of type four. Now an epidemic is a unified phenomenon; it has its beginning, its maximum, and its decline. It is almost necessary to assume that there is some single cause responsible for it; that means that there must be some other, unknown factor back of the diverse strains of dysentery or the different types of pneumococci that we find.

But let us assume that we have the causative organism in our hands. What evidence have we that an autogenous vaccine made from this organism will produce valuable immunity?

The most complete and permanent immunity we know results when a person recovers from certain diseases, such as smallpox, scarlet fever, measles, mumps, whooping cough, etc., in all of which the causative organism is unknown. Recovering from many other diseases, such as streptococcus infections, gonorrhoea, colds, influenza, pneumonia, surgical infections, etc., produces very little or no immunity, and yet these are the very conditions in which we expect an autogenous vaccine to

* Read at a meeting of the South Piedmont Medical Society, in Danville, Va., April 20, 1920.

do what the natural infection is unable to do.

Autogenous vaccines are used not on the well but on the sick; on those already infected. If infected, the germ, the antigen, is already in the body, and why should we add more? If the germs already in the body, naturally, are unable to produce immunity, why should we expect immunity to be produced when more are injected?

Probably the best known and most successful bacterial vaccine is the typhoid. Used on the well as a prophylactic it apparently produces a very useful degree of immunity, but when injected into a patient sick with typhoid it does little or no good, as you all know. Why should it? Why should any other vaccine do better? There does not seem to be much reason to expect vaccines to be of curative value in cases in which the natural infection itself produces little or no immunity.

At the opposite extreme from autogenous vaccine therapy is the use of various foreign proteins injected intravenously. It does not matter much what protein is used. Typhoid vaccine has been widely used for this purpose because it is carefully standardized and easily available, but any other vaccine does as well, or milk or the fluid from a blister on the patient. Snyder (Arch. Int. Med., 1918, Vol. 22, p. 224) reports on 110 cases of arthritis treated by the injection of foreign protein (in this case typhoid vaccine). Sixty per cent. of the acute cases were cured by one injection and fifty per cent. of the subacute cases were improved by several injections, while the old, chronic cases were benefited little or none.

Many other cases in many other conditions and by the use of many other proteins have been reported in which the improvement has been remarkable. Often times when an autogenous vaccine fails, a single injection of a foreign protein will give great improvement.

How can such things be? How can an intravenous injection of milk or typhoid vaccine or the fluid from a blister bring about such improvement in a case of arthritis or chronic gonorrhoea?

It is suggestive that these results are obtained in the very infections we have been talking about—in those that by themselves do not produce immunity.

We do not know why immunity is not produced in these infections. It does not seem to be the fault of the animal so much as the fault of the germ material. It is not alone in man that immunity is not produced; it is with great difficulty that immunity can be produced in animals by the injection of the germs. Apparently, antibodies are not produced because the antigenic material (the germ body material) is inadequate—is incapable of eliciting the antibody response.

Now in such an infection, with the antibody response at a standstill, the injection of a foreign protein often is very beneficial—the patient may be cured by one injection.

The question at once arises: did the foreign protein produce this improvement by stimulating the production of specific antibodies to the infection, or did it act in some non-specific way?

This is such a definite question that it has been tried out (Hermann, Jour. Inf. Dis., 1918, Vol. 23, p. 457), and it has been found that the specific antibodies to the infection are greatly increased by the injection of foreign protein. This is true only when the infection is due to an antigen that of and by itself is incapable of stimulating the production of antibodies. It would seem that in some way the foreign protein supplements or completes the inadequate antigen so that effective immunity is produced.

This conception of an inadequate antigen, of germ material that is of such a nature that it does not call for the full antibody response of the patient, is to me very interesting. So far we have known no more than to try to force a response by doggedly injecting more and more of this inadequate material. Now, if this view proves true it will be in order to look for ways to supplement and complete these inadequate antigens.

In most cases of infection there is probably enough of the natural antigen present. In some there may not be, and in these cases it

may be necessary to inject some more germs. These will be the cases on which to use an autogenous vaccine.

To me this makes painfully prominent our ignorance of this whole subject, and we can perhaps sum up certain points as follows:

1. It is often very difficult to be sure that the causative organism has really been found.

2. With the body already infected it is very doubtful if much good can be done by injecting more of the same germs into the body.

3. There seems to be a difference in the antigenic efficiency of the micro-organisms that cause disease, some being unable to bring about the antibody response.

4. The results so far obtained by injecting various foreign protein materials suggest that in cases where the infecting germs have inadequate antigenic properties it is possible that some day we may be able to supply the deficiency and bring about an antibody response that will result in cure.

5. For the present it would seem wise to use all such measures with great caution.

Public Health

The Patient At Home.

State and private sanatoria present one side of the tuberculosis field; the patient at home another and equally important. For any consideration of the tuberculosis problem as it affects the individual, the family, the community and the State, and which neglects the patient at home, omits an element which will necessarily negative to a considerable extent the benefits gained through other efforts.

The tuberculosis patient at home must have individual attention, because it is obviously impossible to lay down any hard and fast rules for handling all cases. Idiosyncrasies must be weighed, the personal element considered by the home physician in his treatment of the individual case. One patient will respond wonderfully to encouragement; another, overconfident, must be constantly cautioned against overexertion.

The State sanatoria usually keep patients about six months and the patient is then returned home to take up the continuation of the treatment under direction of the home physician. The two or three years following the six months' sanatorium course are of vital importance to the patient, as regards the final outcome of his effort to regain health, and of importance to the community and the family, as regards infection of others.

Educational literature will be of value to both physician and patient during this time. It will help the physician because he can, through its use, the more readily gain that exact obedience the patient must give his orders if success is to follow the long-drawn-out, tedious fight for health. It will help the patient because he will the more readily understand what his physician orders and will therefore give more complete co-operation. It will be found of considerable value to the home physician if he will instruct his tuberculosis patient to study literature issued by the National Tuberculosis Association, a list of which will be supplied upon request to the Virginia Tuberculosis Association, 1110 Capitol Street, Richmond, Va. Especially noteworthy is a booklet, prepared for popular reading, "What You Should Know About Tuberculosis." "Rules for Recovery from Pulmonary Tuberculosis" (Lawrason Brown) is an excellent book for patients to study, as is "The Battle with Tuberculosis and How to Win It" (King). Helpful articles are found in the journal of The Outdoor Life (monthly of the National Tuberculosis Association) and in Sunbeams, the Virginia health publication for lay readers. Sanatorium experience has proved the value of literature such as this in establishing and maintaining the absolutely necessary, exact obedience of the patient to physicians' orders.

New Sanatorium Opened.

Blue Ridge Sanatorium at Charlottesville, the third of the State sanatoria under control of the State Board of Health, is now operating at practically capacity, with a waiting list. Dr. Walter C. Klotz, medical director at Blue Ridge, has completed his staff. Dr. F. B.

Stafford, recently of the medical staff at Catawba Sanatorium, is assistant physician at Blue Ridge. Blue Ridge has a capacity of 120 patients, 20 per cent of whom occupy free beds. The buildings are new, well-appointed and in an attractive section of the Ragged Mountains. Physicians may get complete information as to applications, etc., from Dr. Klotz.

Follow-Up Plan in Force.

Dr. P. S. Schenck, health commissioner at Norfolk, has inaugurated, in co-operation with the Norfolk Tuberculosis Clinic operated under the direction of Dr. Charles R. Grandy, a systematic follow-up of tuberculosis patients discharged from State sanatoria and returned to their homes in Norfolk. Through visiting nurses and physicians of the health department and the local clinic, close co-ordination in the city and State work is thus possible. The value of this work will be at once appreciated. It is proposed to extend this plan to other cities where it is not yet in force. City health commissioners and tuberculosis societies interested are invited to write to the resident physician, Catawba Sanatorium.

Through the United States Public Health Service, a medical officer of the Federal service was detailed to conduct a course for Virginia physicians in diagnostic methods for tuberculosis. The course was instituted at Catawba Sanatorium June 19, under Dr. W. C. Schroeder.

B. L. Taliaferro.

Proceedings of Societies

Nelson County Medical and Surgical Society.

A meeting of the Nelson County Medical and Surgical Society was held at Lovingston, Va., July 26th, for the purpose of reorganization. Dr. J. C. Everett, of Nellys Ford, was elected president; Dr. J. F. Thaxton, of Tye River, secretary-treasurer; Dr. A. A. Sizer, of Schuyler delegate to attend the meeting of the Medical Society of Virginia in Petersburg in October, with Dr. B. F. Randolph, of Arrington, as alternate.

Drs. D. C. Wills and H. S. Dickie were elected new members.

The Society will meet at Lovingston again the fourth Monday in September and regularly thereafter each fourth Monday in May, July, September and November.

J. F. Thaxton, Secretary.

Medical Education

Urgent Needs in Medical Education.

Physicians of Virginia may find the following excerpt from the Report of the Council on Medical Education, of the American Medical Association, of especial interest at this time:

"There are three special needs which require the attention of those interested in the best medical education:

1. The age of students on graduation.
2. The financial side of medical education.
3. The development and reorganization of medical schools on sound educational lines.

The Age of Students on Graduation.

At the annual conference held by the Council in 1917, it was shown that the average age of students on graduation and completion of the hospital year was 28 years plus. This brings the student into the practice of his profession at a far too advanced age. In Central Europe and in Great Britain, physicians enter practice at about 25 or 26 years of age. The solution seems to be to save two years of the student's time by a reorganization of the intermediate and high school curriculums. A comparison of the educational scheme in the United States with that of European countries shows that about two years of time are lost by the average student in this country during his grammar and high school courses. The student of the United States on graduation from high school, would at the same age in Europe have completed the equivalent of two years of work in our colleges of arts and sciences. Agencies in the United States having to do with high school and college education are planning to reorganize the secondary school curriculums so as to save these two years of time. This would enable the average student to graduate two years earlier from the medical school.

The Financial Side of Medical Education.

Many plans now under consideration for the development of medical education seem to utterly disregard the cost.

The fees of each medical student on the average are about $150 each year, while the cost of his instruction is about $450. In many institutions the cost is $1,000 or more and is still mounting. With the increasing cost, fees could be raised to possibly $250. In the interests of the whole community the cost of medical education should be kept as low as possible. For example, the cost of maintaining a hospital for medical teaching should not be borne by the medical school. No hospital should be created and maintained primarily for the teaching of medicine. The first function of a hospital is to take proper medical care of patients, and as a second function, medical teaching and research.

The use of great municipal, state and denominational hospitals should be placed at the disposal of our medical schools for teaching and research. With proper control such a combination of hospital and medical school can be of great mutual benefit. For example, the state hospitals in several states have also been made the teaching hospitals of the state university medical schools. It is pleasing to note also that in several cities—e. g., Augusta, Memphis and Louisville—city hospitals have by contract been made the teaching hospitals of local medical schools. Such combinations are in the interests of the public and receive enthusiastic and generous support. Out-patient departments likewise would serve a more useful function in the community if they were utilized for medical teaching. Special hospitals, such as maternity, orthopedic, children's, eye and ear, psychopathic, etc., should also be associated with medical teaching.

The All-Time Clinical Faculty.

The much discussed plan of all-time clinical teachers is so extravagant that it cannot be generally adopted by the medical schools of the country. A school without unlimited resources could not consider it and even a school with large resources can secure better results with a given amount of money by adopting the part-time plan. The all-time clinical teacher experiment has not been encouraging and it is difficult to secure the best type of men for these positions under restrictions that exclude them from the rewards of professional work well done. It is no secret that these all-time clinical positions have gone begging and well trained clinicians have refused to accept them.

For medical schools having a reasonable endowment, the most practical plan of organizing the clinical departments would be to provide the head professor in each department with a salary of about five thousand dollars a year, and with 10 or 20 beds in the hospital which he can use for his private patients. He should be permitted to devote two hours a day to this private work and be expected to devote the necessary time to teaching duties. If a professor in a clinical chair abused his privileges it would be easy to correct or eliminate him. Living salaries also should be paid to associates; younger men who would do the bulk of the teaching and clinical research. Their greater compensation is the educational opportunity by which after a few years they can become masters of the science and art of medicine and be able to enter successfully into the practice of their specialties. This plan is not an experiment, but has been gradually developed after years of experience in the medical departments of the best universities of the world.

Reorganization of Medical Education.

Some weaknesses have developed in the process of changing our old type of medical schools into medical departments of universities. In the transition the laboratory branches of the medical course have been placed in the hands of university professors who are not in close touch with the practice of medicine and the medical profession. As a consequence,—and as shown by the testing of medical education in the war,—the laboratory branches are not being well taught, even in our best schools, from the standpoint of the training of practitioners of medicine. The college professors of anatomy and physiology have many of them drifted from the science and practice of medicine and from the medical profession.

The American Association of Anatomists, composed largely of the teachers of anatomy

in medical schools, is no longer affiliated with medicine. Its meetings are largely devoted to scientific discussions of the embryology of the rat and lower forms of life and have little or no relation to the science and art of medicine. In many medical schools splendid courses of embryology and comparative anatomy are given but applied human anatomy which is an every day necessity to the practitioner of medicine, is not taught. The college professor of anatomy is sometimes incompetent to teach it and as a result the students suffer. Men of the non-medical type have no place as teachers of anatomy in a medical school and their places should be filled by men who have had a complete medical training. Their first duty is to train practitioners of medicine.

Some Wrong Tendencies in Clinical Teaching.

Medicine passes through cycles. In Trousseau's time, in 1860-1870, the chemists thought chemistry would solve all medical problems, and Trousseau in a clinical lecture pointed out the fallacies of their claims. The same place in the cycle has returned and the chemists and laboratory workers are again claiming that all medical problems are to be solved by the chemical route. To many of these men, the older methods of physical examination, careful clinical observation and morbid anatomy, are old and worn out things in the light of the newer medical chemistry. And some of these men have succeeded in so impressing university trustees, that men who have had special training only along chemical lines are being appointed to chairs of medicine rather than men with a broad clinical training. This tendency is not in the best interests of medical education, of the medical profession, or of the patient.

Sir James Mackenzie in his recently published book on the future of medicine has done a real service in calling attention to the great importance of clinical research along the broad lines of the clinical observation of the patient and the attempt to properly interpret from the symptoms and history the pathology in the case.

Some Tendencies in Our Medical Schools.

At present in this country the university professors in the laboratory branches have been given too large a part in reorganizing our university medical schools and in developing the medical curriculum. It is clearly our duty to call attention to this fact and see that this tendency is corrected. The first and highest duty of the medical school is to train competent practitioners of medicine and this cannot be done by the college professor of embryology and comparative anatomy, or by the chemist working in a clinical laboratory or by the research worker in some isolated medical institute. This problem is to be met by placing the reorganization of medical education in the hands of medical men.

1. The teachers of the laboratory branches should be required to have a medical training which would give them a medical point of view; they would keep in touch with the art and science of medicine, and would realize that their first duty was to assist in training practitioners of medicine.

2. The teachers of the clinical branches should have a broad medical training in both the science and the art of medicine; they should be great clinicians in their special fields, who understand not only what anatomy and physiology, pathology and pharmacology the student needs to acquire, but also what he needs to know to become an expert practitioner of medicine. Fortunately in the last twenty years many such men have been trained in this country.

The controlling element of a medical faculty must consist of a group of medical men in the closest touch with the science and art of medicine and with the medical profession. Such a group must have as its members the professors of medicine, surgery, obstetrics and pathology. Such a group must control a teaching hospital and an out-patient department, with adequate clinical and pathologic material and well equipped laboratories. This plant should be located where it can secure ample clinical material with little or no cost to the medical school.

There is no desire to belittle the importance of the laboratory branches in medicine. But a medical school is a school in which to train

doctors and not anatomists or physiologists. If it fulfills its first and most important function, the training of practitioners of medicine, it will also be training teachers and research workers." (J. A. M. A., May 1, 1920, pp. 1249-1250.)

Correspondence

Visit To Mayo Clinic.

ROCHESTER, MINN., *June* 20, 1920.

TO THE EDITOR:—

No doubt some of your readers will be interested in a short letter from an attendant of the great "Mayo Clinic." I arrived here five weeks ago in company with my brother-in-law, who expected to undergo an operation. During my stay, I decided to put myself through a thorough examination and, after "going through the mill" of about half dozen tests by as many expert doctors, my case was diagnosed "gall stone" and, as I had had a slight attack of bilious (hepatic) colic a few days just prior to this examination, I was advised to be operated on at once. So I was operated on by that great surgeon, Dr. William J. Mayo, at St. Mary's Hospital, on the first day of June, and two large gall stones about the size of guinea eggs were removed, leaving the gall bladder intact. My appendix was also removed at the same operation.

This is the twentieth day after the operation and I am feeling fine. I remained in the hospital under the care of a special nurse for only twelve days. Since leaving the hospital I have been staying at a hotel and, when feeling good, I attend the clinics at one or more of the hospitals, where I witness as many as a dozen or more major operations each day, to say nothing of the hundreds of minor operations.

It has been my privilege to attend hospital clinics in nearly all of our large American cities, as well as in Berlin and London, yet one can see about as much and as great a variety of surgical operations in the Mayo Clinics as anywhere in the world. The two Mayo brothers, with their large staff of expert surgeons, in my judgment, cannot be surpassed. Their fine facilities in the way of operating rooms and well-trained internes and nurses, with the latest and most up-to-date technique throughout, are quite pleasing and clever. They have about one hundred high salaried, expert M. D.s on their staff, besides an equal number of graduate internes, and highly trained nurses, in addition to the one hundred lady clerks. They have an average daily attendance of 300 *new* patients, hailing from all parts of the world—many from European countries, who have been sent by their family physicians.

In the great reception hall, with its seating capacity for 500 patients, one can see every imaginable form of disease and deformity to which man is heir. The five large hospitals are constantly filled with patients, with a waiting list of over one hundred. A new, and quite a large, hospital is now in process of erection, which will have a capacity of 500 beds or more.

These two great brothers (surgeons) have already expended over two million dollars in their hospitals and no doubt, will expend an equal amount within the next few years. This little city of 12,000 inhabitants should be called "Mayo City" instead of Rochester, in view of the fact that the Mayo industry is the only business plant here. Five-sixths of the buildings and homes are hotels and boarding houses. New, fine hotels, some of which are ten stories high, are going up all the time, all for the exclusive use of the Mayo patients. There are from twenty to forty physicians in attendance upon the clinics all the time, and it is quite a pleasure to meet at the "Physicians' and Surgeons' Club" rooms every evening at 7:30 and discuss the various topics of the day pertaining to medicine and surgery. A president and secretary are elected from the membership each week to supervise the program of each meeting. The writer was tendered the presidency of the club at its last meeting but, on account of leaving for his home the following day, he had to decline the honor.

A very fine and up-to-date library is in the

main Mayo Clinic building, which gives one the pleasure of reading the latest medical books as well as the best standard medical journals published. The writer was delighted to find among these the VIRGINIA MEDICAL MONTHLY, especially in its present enlarged form. I think every Virginia physician should encourage the new enterprise and make this journal the leading medical journal of the South, or at least equal to the SOUTHERN MEDICAL JOURNAL, which is also a monthly journal.

An important fact I might add is that the Mayo Clinic is free to all regular physicians, and, further, the Mayos make no charge for any surgical operation on any regular physician. These facts should commend them to the whole medical profession as benefactors of the highest and noblest type of mankind and friends to the worthy beloved physician.

The medical profession of the United States will be called upon in the near future to select and name a suitable medical man for the honorable position of Secretary of Public Health and Preventive Medicine. In the writer's judgment, there is no better qualified man for this position in the President's cabinet than William J. Mayo, A. M., M. D., LL. D., of Rochester, Minn., the founder of the great Mayo Clinic, which is now world renowned.

B. C. KEISTER.

Home address, Roanoke, Va.

The Truth About Medicine

During June the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Abbott Laboratories:
- Benzyl Benzoate (Abbott).
- Elixir Benzyl Benzoate (Abbott).
- Tablets Benzyl Benzoate (Abbott).

Arlington Chemical Company:
Pollen Extracts-Arlco:

Aster	Dandelion
Birch	Dock
Cherry	Elm
Clover	Goldenglow
Corn	Goldenrod
Dahlia	Hickory
Daisy	June Grass
Orchard Grass	Locust
Poplar	Maple
Poppy	Narcissus
Red Top	Oak
Rose	Timothy
Rye	Walnut
Sunflower	Willow

Ragweed (**Ambrosia trifida**).
Ragweed (**Ambrosia artemisiaefolia**).

Fritzsche Brothers, Inc.:
- Benzyl Benzoate (Fritzsche).

Gilliland Laboratories:
- Pertussis Bacillus Vaccine.
- Diphtheria Toxin-Antitoxin Mixture.

Heyden Chemical Works:
- Ichthynat.

Hynson, Westcott & Dunning:
- Whole Ovary-H. W. D.
- Whole Ovary Tablets-H. W. D., 5 grains.

Lederle Antitoxin Laboratories:
- Antipneumococcus Serum (Polyvalent).
- Gonococcus Glycerol Vaccine.
- Pollen Antigen-Lederle (Fall Type).

NEW AND NONOFFICIAL REMEDIES.

Cellu Flour.—A specially pure cellulose in the form of flour. It is used as a means of filling out reduced diets, as in the Allen treatment for diabetics. It satisfies hunger without furnishing nourishment. Cellu flour, after admixture with bran, baking powder, eggs, "India gum," or liquid petrolatum in varying proportions, may be used for the preparation of imitation bread, muffins, etc. Dietetic Cellulose Company, Chicago.

Diaprotein Prepared Casein Flour.—Casein, to which has been added 4 per cent. of a leavening mixture. It is employed in cases, such as diabetes, etc., in which carhohydrates are contraindicated. Diaprotein Prepared Casein Flour is adapted for the preparation of bread, cakes, etc. Diaprotein Company, Chicago.

Anesthesin-Abbott.—A brand of benzocaine (see New and Non-official Remedies, 1920, p. 33) complying with the N. N. R. standards. The Abbott Laboratories, Chicago (Jour. A. M. A., June 5, 1920, p. 1577).

Pollen Extracts-Arlco.—Liquids obtained by extracting the proteins from the pollen of various species of plants. For a discussion of the actions, uses and dosage of pollen extracts see New and Nonofficial Remedies, 1920, p. 226. Each of the Arlco products listed above (see list) is marketed in sets of four vials representing graduated concentrations: 1:10,000, 1:5,000, 1:1,000 and 1:500, respectively; also in concentrated solution in capillary tubes for diagnostic tests. For hospital use the diagnostic solution is supplied in 1 Cc., 2 Cc. and 3 Cc. containers. Arlington Chemical Company, Yonkers, N. Y.

Antipneumococcus Serum (Polyvalent), Types I, II and III.—An antipneumococcus serum (see New and Nonofficial Remedies, 1920, p. 269) prepared by immunizing horses with dead and living pneumococci of the three fixed types and standardized against Type I culture. Marketed in double ended vials containing 50 Cc. each, with needle and tubing; also in bottles of 100 Cc. Lederle Antitoxin Laboratories, New York.

Pertussis Bacillus Vaccine.—A pertussis bacillus vaccine (see New and Nonofficial Remedies, 1920, p. 285) prepared from several strains of pertussis bacillus (Borget-Gongou). Marketed in packages of four syringes containing 250, 500, 1,000 and

2,000 million killed bacteria, respectively; in packages of four ampules containing 250, 500, 1,000 and 2,000 million killed bacteria, respectively; also in 5, 10, and 20 Cc. vials containing 2,000 million killed bacteria per cubic centimeter. Gilliland Laboratories, Inc., Ambler, Pa. (Jour. A. M. A., June 26, 1920, p. 1779).

PROPAGANDA FOR REFORM.

Chaulmoogra Preparations and Sodium Morrhuate.—Chaulmoogra oil and preparations made from it are at present extensively employed and seem to produce amelioration in the majority of lepers to whom it has been administered persistently. Investigation has shown that chaulmoogra oil contains bactericidal substances that are one hundred times more active than phenol, and that this bactericidal action is specific for the acid fast group of bacteria to which the causative organism of leprosy belongs. The product is inactive against all other organisms studied. On the other hand, it has been shown that sodium morrhuate and the fatty acids of cod liver oil do not have a similar action in tuberculosis, which is also due to an acid fast bacterium. The value of chaulmoogra preparations in tuberculosis remains to be demonstrated, and their clinical trial should await their experimental investigation. The indiscriminate use of drugs in tuberculosis may arouse false hopes and may not be without danger to the patient (Jour. A. M. A., June 5, 1920, p. 1578).

Syrup Leptinol.—The Council on Pharmacy and Chemistry reports that Syrup Leptinol (formerly called Syrup Balsamea) is inadmissible to New and Nonofficial Remedies, first, because the manufacturer failed to give the profession information either in regard to the amount of the potent ingredient or the method of determining its identity and uniformity; secondly, because of the unwarranted recommendation for its use in such infectious diseases as pneumonia and epidemic influenza and the lack of satisfactory supporting evidence of the alleged therapeutic efficacy in other diseases; and thirdly, because the recommendation for its use appearing on and in the trade package constitutes an indirect advertisement to the public. Syrup Leptinol is marketed by the Balsamea Company of San Francisco. It is a balsamic syrup made from an unclassified species of Leptotaenia (a plant belonging to the parsnip family) which grows in Nevada. No evidence was presented to show that it had the remarkable properties ascribed to it by the Balsamea Company. The clinical reports which were reported were little more than chance observations and lacked all control (Jour. A. M. A., June 5, 1920, p. 1590).

What Is the Therapeutic Value of the Hypophosphites?—A research conducted by the Council on Pharmacy and Chemistry shows: There is no reliable evidence that they exert a physiologic effect. It has not been demonstrated that they influence any pathologic process. They are not foods. If they are of any use, that use has not been discovered. The hypophosphites were introduced into medicine by Churchill, who advanced the theory, long since discarded, that the so-called tuberculosis diathesis was due to a phosphorus deficiency. It is now known that little phosphorus, if any, is assimilated from hypophosphites—far less than from phosphorus compounds of ordinary foods. As a result of the power of advertising, many physicians still prescribe hypophosphite combinations (Jour. A. M. A., June 12, 1920, p. 1661).

More Misbranded Nostrums.—The following "patent" medicines have been the subject of prosecution by the federal authorities, chiefly because the therapeutic claims made for them were false: Sealeaf Emulsion, an emulsion of cod liver oil and malt extract; Green Mountain Herb Tea, and Sabine's Indian Vegetable Tea, consisting essentially of senna, fennel, elder flowers, anise, triticum, sassafras, American saffron, coriander, licorice root, butternut bark, buckthorn and Epsom salt; Sabine's Indian Vegetable Cough Balsam, consisting essentially of alcohol, chloroform, tar, resin, sugar and traces of alkaloids; Bovinina, apparently a meat extract; Fruit-a-Tives, containing essentially extracts of aloes, nux vomica and cinchona bark; Anticalculina Ebrey, consisting essentially of alcohol, colchicin, ammonium salts, vegetable extractives and water; McDowell Ginseng Bitters, a solution of plant extract, containing small quantities of glycerin and a zinc salt (Jour. A. M. A., June 12, 1920, p. 1661).

Quality of Acetylsalicylic Acid.—The following brands of acetylsalicylic acid have been found of satisfactory quality and are in New and Nonofficial Remedies: Acetylsalicylic Acid-Heyden, Acetylsalicylic Acid-M. C. W., Acetylsalicylic Acid-Merck, Acetylsalicylic Acid (Aspirin)-Monsanto, Acetylsalicylic Acid-P. W. R., Acetylsalicylic Acid-Squibb, and Aspirin-L. and F. An examination made in the A. M. A. Chemical Laboratory two years ago showed that the product supplied as acetylsalicylic acid was of equal quality with the German made Aspirin Bayer. The Aspirin Bayer now made in America and exploited with misleading claims is controlled by the Sterling Products Company, which sells cascarets, danderine, etc. (Jour. A. M. A., June 12, 1920, p. 1664).

Formitol Tablets.—In a report of the Council on Pharmacy and Chemistry, it was stated that Formitol Tablets of the E. L. Patch Company contained formaldehyd (or paraformaldehyd) and some hexamethylenamin, and that the formaldehyd (or paraformaldehyd) had been produced by the decomposition of the hexamethylenamin originally present in the tablets. The Council now reports that the Patch Company declares that no hexamethylenamin is used in the manufacture, and that, therefore, that which was found must have been produced from the formaldehyd and ammonium chlorid in the tablets. The Council further reports that a printed sheet received from the Patch Company conveyed the information that Formitol Tablets contained ammonium chlorid, benzoic acid, citric acid, guaiac, hyoscyamus, menthol, paraformaldehyd and tannic acid, but gave no information as to the amounts of any of the ingredients, except that each tablet was declared to represent 10 minims of a 1 per cent. formaldehyd solution. Because of the non-quantitative, and, therefore, meaningless "formula," the A. M. A. Chemical Laboratory made an analysis of the tablets. The analysis indicated that the combined weight of all the claimed active ingredients is less than one grain per tablet! Formitol Tablets furnish a good illustration of some well established truths: (1) "Formulas" that are non-quantitative are valueless or worse than valueless. (2) The fact that a manufacturer puts certain drugs in a mixture is no proof that these drugs are there when the mixture reaches the patient. (3) Complex mix-

tures should be avoided. It is absurd to expect, as is claimed in the case of Formitol Tablets, anodyne, antiseptic, astringent, expectorant and resolvent action, all at the same time (Jour. A. M. A., June 19, 1920, p. 1730).

Formula for Mouth Wash.—Castile soap, dried and granulated, 6.00 gm.; benzosulphinid, 0.20 gm.; basic fuchsin, 0.002 gm.; oil of cassia, 0.50 c. c.; oil of peppermint, 0.50 c. c.; oil of cloves, 1.00 c. c.; alcohol, 75 c. c.; water to make 100 c. c. A few drops added to water to be used as a mouth wash. It will be noted that, except for the volatile oils present, antiseptics are conspicuous by their absence. It is impossible to disinfect the mouth. Mere bacteriostatic (germ growth inhibitive) influence of antiseptics can be of value only as long as the agent is present; and the time that one is willing to keep the mouth full of fluid is limited. The chief virtue of mouth wash preparations lies in their esthetic qualities, their pleasant appearance, odor and taste, which induces their use (Jour. A. M. A., June 19, 1920, p. 1732).

Book Announcements

Annals Of Medicine, with Abstract of the World's Literature. Vol I. No. 1, April 1920. W. F. Prior Company, Inc., Publishers. Hagerstown, Md., and 22 East 17th St., New York City. 165 pages. Published quarterly. Paper. Price, United States and Canada, $10.00 yearly. Single copies, $3.00. All other countries, $12.00 yearly.

This book, which made its initial appearance with the April issue, is published quarterly in the interests of American medicine under the direction of the Councilors of the American Congress on Internal Medicine and the American College of Physicians. In this number is given also a roster of the members of the College of Physicians and of the Congress on Internal Medicine.

Principles and Practice of Physical Diagnosis. By JOHN C. DaCOSTA, JR., M. D., Ex-Associate Professor of Medicine, Jefferson Medical College, Philadelphia. Fourth Edition, thoroughly revised. Philadelphia and London. W. B. Saunders Company, 1919. Octavo of 602 pages with 225 original illustrations. Cloth, $4.75 net.

Diseases of the Chest and the Principles of Physical Diagnosis. By GEORGE W. NORRIS, M. D., Assistant Professor of Medicine, University of Pennsylvania, and HENRY R. M. LANDIS, M. D., Assistant Professor of Medicine, University of Pennsylvania, with a chapter on **Electrocardiograph in Heart Disease,** by EDWARD B. KRUMHAAR, Ph. D., M. D., Assistant Professor of Research Medicine, University of Pennsylvania. Second Edition, Revised. Philadelphia and London. W. B. Saunders Company. 1920. 8vo. 844 pages with 433 illustrations. Cloth, $8.00 net.

Pasteur—The History of a Mind. By EMILE DUCLAUX, late member of the Institute of France, Professor at the Sorbonne and Director of the Pasteur Institute. Translated and edited by ERWIN F. SMITH and FLORENCE HEDGES, Pathologists of the U. S. Department of Agriculture. Illustrated. Philadelphia and London. W. B. Saunders Company. 1920. 8vo. 363 pages. Cloth, $5.00 net.

The Care and Feeding of Southern Babies. A Guide for Mothers, Nurses and Baby Welfare Workers of the South. By OWEN H. WILSON, M. D., Professor of Diseases of Children, Vanderbilt University. Baird-Ward Printing Company. Nashville, Tenn. 1920. 16mo. 131—III pages. Cloth.

Handbook of Diseases of the Rectum. By LOUIS J. HIRSCHMAN, M. D., F. A. C. S., Professor of Proctology, Detroit College of Medicine; Ex-President American Proctologic Society. Third Edition, revised and rewritten. St. Louis. C. V. Mosby Company. 1920. Octavo, of 378 pages with 233 illustrations, mostly original, and four colored plates. Cloth, $5.

A Text-Book of Physiology. For Students and Practitioners of Medicine. By RUSSELL BURTON-OPITZ, S. M., M. D., Ph. D., Associate Professor of Physiology, Columbia University, New York City. Philadelphia and London. W. B. Saunders Company. 1920. 8vo. 1185 pages, with 538 illustrations. Cloth, $7.50 net.

Sexual Impotence. By VICTOR G. VECKI, M. D., San Francisco, Cal. Sixth Edition, revised. Philadelphia and London. W. B. Saunders Company. 1920. 12mo. 424 pages. Cloth, $3 net.

Surgical Shock and the Shockless Operation Through Anoci-Association. By GEORGE W. CRILE, M. D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland; and WILLIAM E. LOWER, M. D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Second Edition of "Anoci-Association," thoroughly revised and rewritten. Philadelphia and London. W. B. Saunders Company. 1920. Octavo, 272 pages with 75 illustrations. Cloth, $5 net.

Marriage of Diseased Persons.

Public Health Reports states that the New Jersey Court of Chancery decided that a marriage can be annulled where one of the parties concealed the fact that he had chronic tuberculosis.

In a suit by a wife for annulment of her marriage, it was shown that the husband had concealed the fact that he was suffering from chronic tuberculosis for fear if he had told her she would not marry him. The court held that the concealment was such a fraud as would warrant the annulment of the marriage.

Worst Pay the Best.

Mrs. Barton—"Have you any faith in life insurance?"

Mrs. Grill—"Yes, indeed; I've realized $10,000 from two husbands, and they weren't good ones, either."—Exchange.

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ALEX. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
BEVERLEY R. TUCKER, M. D., Richmond, Va.
PAUL W. HOWLE, M. D., Richmond, Va.
EDWIN L. KENDIG, M. D., Victoria, Va.
ALFRED L. GRAY, M. D., Richmond, Va.

EDITOR
ALEX. G. BROWN, Jr., M. D.
G. H. WINFREY, Business Manager.

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Editorial

Commission on Medical Education in Virginia.

To impress members of the medical profession of Virginia with the importance of the work of the Commission on Medical Education in Virginia, we repeat the report which appeared in our last issue under the head of Medical Education. This is a subject of great moment to every doctor within the confines of Virginia, not only on account of its present influence, but also because of what the decision made at this time may mean to succeeding generations.

The following appointments have been made to the Commission on Medical Education in Virginia: From the Senate of Virginia, Senator C. B. Woodson, of Nelson County; Senator M. B. Booker, of Halifax County; from the House of Delegates, Hon. Wilbur C. Hall, of Loudoun County; Hon. William D. Prince, of Sussex County; appointed by the Governor, Dr. Beverley R. Tucker, of Richmond; Dr. James H. Dillard, of Charlottesville; Dr. Julian A. Burruss, of Blacksburg; Dr. Stuart McGuire, of Richmond (on nomination by the Board of Visitors of the Medical College of Virginia), and Dr. Theodore Hough, University, Va., (on nomination by the Board of Visitors of the University of Virginia).

The Commission held its first meeting in Richmond, June 28, 1920, and organized by the election of Honorable Wilbur C. Hall as chairman, and Dr. Theodore Hough as secretary. The following resolution was adopted:

Whereas the function of the Commission on Medical Education in Virginia is to make a thorough investigation of the present status and future possibilities of medical education in Virginia and on the basis of this to make recommendations leading to the establishment of a single state-supported medical school in Virginia; and whereas it is not conducive to the efficiency of such an investigation while in progress to have the press of the state report the results of separate meetings of the Commission except as authorized by the Commission:

Therefore Be It Resolved that no reports of the results of meetings of this Commission be made to the press except such reports as are directly authorized by the Commission itself.

And Be It Furthermore Resolved that the newspapers in Richmond, Charlottesville, and elsewhere be requested to co-operate in making this resolution effective.

Provided that nothing in this resolution shall be construed as discouraging the appearance before this Commission of any citizen or body of citizens of the State of Virginia to present pertinent facts or considerations bearing upon the work of the Commission. Whenever any citizen or body of citizens desires to appear before the Commission for the aforesaid purpose, they must first communicate this desire to the President or Secretary of the Commission. This request must then be laid before the Commssion which shall make an appointment for the applicants to appear before the Commission.

The Commission also adopted the following resolution:

Whereas the Commission on Medical Education in Virginia desires contributions of facts and considerations pertinent to its investigations from citizens of the State of Virginia and of other States who are in a position to contribute such facts and considerations;—

Therefore Be It Resolved that the Secretary of the Commission be instructed to invite the following citizens, boards, or associations to make any contribution of facts or consideration pertinent to the subject of investigation by the Commission; namely, the best organization of medical education in Virginia:—

1. The President and the Board of Visitors of the University of Virginia.
2. The President and the Board of Visitors of th Medical College of Virginia.
3. The Officers of the Medical Faculty of the University of Virginia.
4. The Officers of the Medical Faculty of the Medical College of Virginia.
5. The Medical Society of Virginia.
6. The Local Branches or Societies of the Medical Society of Virginia.
7. The Board of Medical Examiners of Virginia.
8. The Board of Health of the State of Virginia.

And Be It Furthermore resolved that the Secretary be instructed to invite similar contributions from any other citizens, organizations, or boards in Virginia or elsewhere as may be suggested to him by any member of the Commission, and that the Secre-

tary be authorized to use his own judgment as to the best means of conveying this invitation to the parties concerned; for example by the use of form letters or by publication in the Virginia Medical Monthly or any other medium of communication.

And Be It Furthermore Resolved that in issuing these invitations the Secretary be instructed to emphasize the fact that the Commission does not desire merely expressions of opinion but the facts and considerations which lead the writer to the conclusions reached.

It was also voted to request the administrative officer or officers of other medical schools which are, or have been, face to face with similar problems to those which confront the Commission, to contribute such facts or pertinent considerations from their own experience in solving these problems as they may be in a position to contribute. In accordance with this resolution, questionaires are being sent to the administrative officers of some twenty-three medical schools.

In addition to this, the Commission has taken steps to secure an expert survey of medical education in the State by outside agencies. These agencies will report their findings to the Commission with recommendations as to the best policy to be pursued by the State of Virginia in the future.

It will be seen from the above resolutions that the Commission is determined to make a thorough and impartial study of medical education in Virginia. In this work it needs all the assistance it can obtain from those who are in a position to give this assistance. Formal requests have been sent to the Medical Society of Virginia, the Board of Medical Examiners, and the State Board of Health. The Commission would also greatly appreciate similar contributions from the local branches or societies of the Medical Society of Virginia, and takes this method of issuing an invitation to each of these societies to contribute to its work. The resolutions quoted also show that the Commission does not merely desire expressions of opinion with regard to the best course to be pursued by the State, but rather desires the facts and considerations which lead to the conclusions reached. Among the subjects upon which such local societies or individual physicians can make valuable contributions are the following:

1. The needs of the State of Virginia for physicians and the number of men who should be graduated annually to meet these needs.

2. The relation of the output of physicians by the medical colleges of the State to the supply of physicians and health officers for the rural districts, and other factors influencing the supply of physicians and health officers for the rural districts; together with recommendations as to the best methods of securing improved medical service for the rural districts of Virginia.

3. The present clinical material and facilities in the State available for the teaching of medicine, including the possibilities of utilization of State institutions, such as insane asylums, tuberculosis sanatoria, orthopedic clinics, etc., with suggestions as to how these may be so developed and improved that, while serving the needs for which they are primarily established, they may be utilized to the utmost in the improvement of medical education in the State and in the advancement of the science and art of medicine.

4. The needs of the State of Virginia for post-graduate instruction in medicine, and how these needs can best be met.

5. The needs of the State of Virginia for the training of public health officers, the relation of this training to medical education, and how these needs can best be met.

6. The needs of the State for adequate training of nurses, and how these needs can best be met.

7. The proper basis of hospital support for the teaching hospital or hospitals of the State-supported medical school, with special reference to the part which should be assumed by the State out of its general funds and the part which should be assumed by the cities and counties which send patients to the said hospitals.

8. The best practicable basis for securing teachers for the clinical branches in Virginia.

9. The possibilities of development of a single State-supported medical school at the University of Virginia with the advantages and disadvantages of this location.

10. The possibilities of developing the single State-supported medical school in Richmond as the Medical Department of the University of Virginia, with the advantages and disadvantages of this location.

All communications for the Commission should be sent to the Secretary, Dr. Theodore Hough, University, Va.

The Commission voted to hold its next

meeting in Charlottesville early in September.

In accordance with a request made by the Commission, Dr. P. A. Irving, president of the Medical Society of Virginia, has appointed a committee to gather such facts and considerations as may be pertinent to the subject of investigation by the Commission—the best organization of medical education in Virginia. At the meeting of the Society, in Petersburg, this fall, the committee will present their report for approval, before submitting it to the Commission for such consideration as they may deem worthy.

Members of the committee from the State Society, appointed by Dr. Irving are: Dr. William S. Gordon, Richmond, chairman; and Drs. J. Bolling Jones, Petersburg; J. Shelton Horsley, Richmond; Lewis G. Pedigo, Roanoke; Hunter H. McGuire, Winchester; J. Singleton Belt, South Boston; John T. Graham, Wytheville.

Do Not Neglect Your Own Interests.

Renewed interest in the county and district societies is being shown in many parts of the State. Physicians realize as never before that to:

Protect their own interests,
Maintain high professional ethics,
Iron out professional jealousies,
Influence State and municipal legislation, affecting health, prevention of disease, recreation, hours of labor, requirements governing the practice of medicine in this State, and health insurance, and to,
Keep abreast of the times,

a component society is essential in every county and city in the Commonwealth.

Going daily into all of the homes of the State, knowing intimately the rich and poor, the laborer and the capitalist, you are the most influential body of men in the State. With the world turned upside down you can exert more positive influence for good in bringing us back to common sense ways of living than any other people, the ministry not excepted. If the doctors of this State were to unitedly ask the legislature of this State for any good thing, they would get it.

We must have a live component society in every county in the State. The necessity for selecting a delegate to the meeting of the society in Petersburg this coming October will make it easy to call your fellow physicians together again and reorganize. Why not allow the secretary to write your notices and follow them up with a personal visit and persuade the doubting ones to come in?

Letters from members of the society relating to this matter of pressing importance will be doubly welcome.

G. H. W.

Automobile Insurance and Telephone Service.

The physicians of Virginia who carry automobile insurance, fire, theft, collision, personal injury, and property damage, will be surprised to learn just what this insurance actually costs. Take for example a twenty-five horse-power car insured for $500.00. For fire and theft you pay $13.75, for collision $50.00, and for indemnity $43.65, making a total of $107.40. Now what disposition is made of your $107.40? On information secured by this office from sources believed to be reliable the beneficiary of your policy, yourself or the person injured, gets $38.67, while the insurance company distributes to its stockholders, agents, salaried officers, overhead and other expenses $67.73. If you drive a more expensive car or carry more insurance, this proportionate distribution continues and you are an even heavier loser.

The real conditions are worse than those given in these figures for, in making up their rates, physicians are averaged with every Dick, Tom, and Harry who drives an automobile. No credit is given because of the fact that physicians are by instinct, training, and habit, more careful when driving than any other class. An effort will be made to get from the doctors of the State exact information showing just what they have paid for this insurance and what has been returned to them. With this information in hand this office can follow up its plans to get for members of the Medical Society of Virginia absolute protection at a more reasonable cost. Making a reasonable

allowance for operating expenses, they should get protection for about half what it now costs.

Since 1917 telephone service throughout the State has been, in common parlance, "rotten." This month, in the capital city of the State, a physician's phone was out of order for nine days on a stretch. Complaints were made regularly and persistently, each employee from "complaint" to manager promised to get "behind it." Each one succeeded effectually in getting behind something and hiding from view and nothing was done. Finally, in desperation the writer notified the manager that the company could put the phone in order or meet him before the Corporation Commission and explain why. In a few hours the line was working and for two days thereafter employees were kept on the line putting it in perfect condition.

The Corporation Commission has recently granted several of the companies substantial increases in rates based on the increased costs of maintaining service. The doctors of the State will not complain if the increased rates produce the more efficient service. If the service is not improved they will complain and properly so.

If your company does not render you the service you are paying for, this office will take particular pleasure in laying your complaint before the Corporation Commission and secure relief if possible. Having suffered on account of the inefficiency and indifference of the local company, it will give your secretary real pleasure in prodding the telephone companies into action.

G. H. W.

Thanks to More Than Two Hundred.

At this writing, slightly more than two hundred members of the society paid their dues during the month of July. Nearly one thousand members are still indebted to the society, owing amounts ranging from two dollars to twenty-two dollars. So many general statements are made these days about increased costs that we will specify ours: Paper for one issue of the magazine a few months ago cost about fifty dollars, it now costs one hundred and fifty dollars; printing the magazine last fall cost about three hundred dollars per issue, it now costs about five hundred dollars per issue. These additions, which were not contemplated when the society took over the magazine have forced on the local office a heavy burden. Other interests of the society have been temporarily neglected while new advertising was secured to carry us along without debt. We feel confident now that the magazine is on a firm basis and that when things become stabilized it will take care of itself.

Meanwhile, we are greatly concerned about the present. Members owe the society nearly five thousand dollars—enough to make us finish the year with flying colors. If you have not already done so, mail your check to-day, because we must pay the printer and the paper merchant, office rent and the multitude of bills from others that make life almost miserable.

G. H. Winfrey,
Secretary-Treasurer.

News Notes

Standards of Physical Fitness for Children Entering Employment.

The permanent committee on standards of physical fitness for children entering employment, appointed by the Children's Bureau of the U. S. Department of Labor, has prepared a preliminary report which may be obtained by experts in industrial hygiene, state labor departments, local certificate issuing officers, and other interested persons throughout the country. It consists of two parts—General Recommendations and Minimum Standards of Physical fitness for Children Entering and Working in Industry. The recommendations advocate a minimum age of 16 years for entrance into industry, with a complete physical examination as a prerequisite, and periodical examinations after entering upon work. Defects are listed for which certificates should be permanently or temporarily refused.

Petersburg Meeting, Medical Society of Virginia.

"Lest we forget," the 1920 meeting of the Medical Society of Virginia is to be held in Pe-

tersburg, October 26, 27, 28 and 29. You will need a vacation by that time, and meeting old friends and making new acquaintances will add to the pleasure of the occasion as usual. Petersburg and Dinwiddie County doctors are planning for the entertainment of their visitors and hope to have this a big meeting. Technical papers on a variety of subjects will be presented and many matters of interest will be discussed. Make your plans to attend.

Postals have recently been mailed to all members of the Society asking for titles of papers to be presented at the Petersburg meeting. As we would like to publish titles of all papers in the Preliminary Program to appear in September issue of the Journal, we would be glad to receive them by date named on the card—August 23. The Society will be glad to hear from any of its members.

Association Of American Clinical Thermometer Manufacturers.

During the war, there was practically a famine for fever thermometers, due to a greatly increased demand. This induced many individuals to engage in manufacturing these delicate little instruments without previous knowledge or experience. The market was thus flooded with thousands of defective thermometers, which are not only inaccurate in their registration, but positively dangerous to use. Therefore, the reliable manufacturers of clinical thermometers of this country have banded together to try to bring about a better state of affairs in this industry.

In 1917, Massachusetts passed a law regulating the sale of clinical thermometers and defining the manufacturing requirements. That State then undertook to test the goods found on the shelves of the dealers, and found that 25% of the thermometers tested were imperfect and unfit for use. This law, which has penalties for the sale of defective thermometers, eliminates these dangerous thermometers as far as Massachusetts is concerned, but it is the aim of the above association to secure accuracy in fever thermometers in every State in the Union, and they are anxious to secure a National law along similar lines.

This seems to us a matter worthy of the consideration of all local and other medical organizations. It may be a means of safeguarding your patient. Any communications on this subject should be addressed to Paul L. Brand, secretary and treasurer of the Association, Bush Terminal P. O., Brooklyn, N. Y.

Births Greatly Outnumbered Deaths in United States in 1918.

Statistics for 1918, recently completed by the Bureau of Census, show 1,363,649 births in the registration area of the United States which, it is estimated, covers about 53% of the country's population. The birth rate exceeded the death rate for the same year by 34.4%. One-tenth of the infants born in 1918 died before reaching the age of one year, and the rate was nearly 23% greater for male than for female infants.

During this same year, the birth was reported of 15,342 pairs of twins and 147 sets of triplets. There were 58 cases where the birth reported was the twentieth or more child, and in 345,027 cases, the infant was the first born.

Dr. C. L. Purdy,

Of Spring Bank, Va., was elected president of the local branch of the Virginia Farmers' Educational and Co-operative Union, formed at Ebony, Va., the latter part of July.

Dr. and Mrs. Julian F. Ward,

Winchester, Va., were visitors at Atlantic City, N. J., early in July.

Dr. James N. Ellis,

Formerly of this State, but who has made his home in Atlanta, Ga., for a number of years, was a recent visitor at his boyhood home in Buckingham County, Va.

Attend Mayo Clinic.

During July, Drs. A. L. Herring and W. T. Oppenhimer, of this city, and F. C. Pratt, Fredericksburg, Va., attended the Mayo Clinic, in Rochester, Minn.

Hospital for Crippled Children to be Built at Asheville.

The owner of Grove Park Inn, Asheville,

N. C., has announced that he will construct in that city a hospital for crippled children, which he will maintain from the profits of his hotel. A site has been selected on Sunset mountain and construction of the hospital will be commenced shortly. Dr. W. P. Herbert, Asheville, will be chief of the medical staff.

Dr. and Mrs. Hugh Trout,

Of Roanoke, Va., have recently returned from a trip to Philadelphia and other northern and eastern points.

On Fishing Trip.

Drs. Greer Baughman and E. H. Terrell, of Richmond, visited Dr. B. B. Bagby, of West Point, Va., last month and enjoyed the fishing in that section.

$20,000 For Inspection and Correctional Work.

The Executive Committee of the State Board of Health recently has adopted a resolution providing that the sum of $20,000 shall be used as State aid to counties or communities for medical and physical inspection and correctional work through public schools. This financial aid is limited to one-half of the amount appropriated for the same purpose by the local authorities.

Not more than $500.00 may be expended in any one county for inspection work, and not more than $500 for correctional work, or a maximum of $1,000 of State funds for these purposes in any one county.

Industrial Research by Laboratories in America.

A bulletin, just issued by the National Research Council, lists more than three hundred laboratories maintained by industrial concerns in America, in which fundamental scientific research is carried on. The bulletin gives a brief account of the personnel, special equipment and particular kind of research carried on in each of the laboratories listed.

Industrial research laboratories have increased notably in number and activity, both in America and Great Britain, since the beginning of the War, because of the lesson vividly taught by the war emergency. It was only by a swift development of scientific processes that the Allies and America were able to put themselves in a position first to withstand and then to win a victory over Germany's science-backed armies and submarines. And it is only by a similar and further development that America and the Allies can win over Germany in the economic war-after-the-war, now being silently but vigorously waged.

Training Starts in Hospital.

A Vocational Unit has been established by the Federal Board for Vocational Education at the Government Hospital for the Insane, St. Elizabeth's, Washington, D. C., and at Manhattan State Hospital, New York City. This is a radical change in the handling of psychoses. Formerly, a psychotic patient was discharged as socially cured when he no longer presented a-social or anti-social symptoms in hospital environment. He was then returned to the very environment in which his psychosis developed, dependent on his family for support, and with no definite, productive employment. It is needless to add that frequently a relapse speedily followed.

The plan of the Federal Board is to start a man's vocational training while he is still under treatment in a hospital, continue this training in a training center under proper supervision, and return him to his home, not only with a trade, but with a job which will render him economically independent and stimulate him with the hope thus engendered. It is firmly believed that more often than not the adjustment to social environment will remain permanent.

Should the results obtained by these units be encouraging, similar units will be started in all hospitals caring for a sufficient number of ex-service men with nervous and mental disorders.

Dr. Roy K. Flannagan,

Who has been for some time assistant health commissioner of Virginia and State director of rural sanitation, has been elected executive secretary of the Virginia Tuberculosis Association, succeeding Dr. Dean B. Cole, who resigned and left the first of July for New York. Dr. Flan-

nagan has taken much interest in the health work of this State and is well fitted for his new position, which he was to enter about the first of August.

Better Medical Attention Planned for Convicts in Virginia.

A conference was held in July at the State penitentiary at which time the board of directors of the penitentiary and physicians appointed by several medical organizations discussed many questions looking to the betterment of health conditions at the penitentiary, state farm and various convict camps throughout the state. After the meeting, the physicians made a tour of inspection of the penitentiary and later some of them will visit the various road camps and state farm to secure first hand knowledge of the situation.

Among those attending the conference were: Drs. Wm. F. Drewry, Petersburg, H. U. Stephenson, Toano, and Robt. C. Bryan, McGuire Newton and Thos. W. Murrell, Richmond, repsenting the Medical Society of Virginia; Drs. E. C. L. Miller, Howard Urbach, Jas. H. Smith, and J. F. Geisinger, representing the Medical College of Virginia; Dr. Roy K. Flannagan, from the State Department of Health; and Drs. W. A. Brumfield, T. B. Leonard, and West, from the U. S. Public Health Service.

Dr. F. A. Ward,

Formerly of Disputanta, Va., has located in Richmond, with offices at 5 West Grace Street. He will limit his practice to diseases and surgery of the eye, ear, nose and throat.

Married.

Dr. and Mrs. J. Calvin Hurst announce the marriage of their daughter, Mabel, to Dr. Dell Valmont Des-Portes, Wednesday, July 21. After an extended wedding trip, Dr. and Mrs. Des Portes will be at home at 1207 Wasena Terrace, Roanoke, Va.

Dr. Hayward Westcott, of Melfa, Va., and Miss Elizabeth Mawhinney, of Pittsfield, Mass., recently. Dr. Westcott is a member of the class of '18, Medical College of Virginia.

Dr. Amos R. Koontz, Stanley, Va., and Miss Bessie Erving Stocking, Wickliffe, Ohio, July 3. Dr. Koontz is a graduate of Johns Hopkins Medical School and served in the medical reserve corps during the world war.

Dr. Simon H. Rosenthal, Lynchburg, Va., and Miss Bettye Greenberg, Danville, Va., June 6.

Danger From Flies Recognized by Court.

According to Public Health Reports for July 23:

"The Supreme Judicial Court of Maine has decided that a guest who had contracted for a two weeks' stay at a hotel was justified in leaving before the expiration of the two weeks when the dining room was infested with flies.

"A contract was entered into for a two weeks' stay at a hotel. After three or four days the guests left, paying the regular transient rate for the time they had been at the hotel. The reason assigned for leaving was that the flies in the dining room constituted a nuisance and were dangerous to health. No complaint was made regarding other conditions at the hotel.

"The proprietor sought to recover for the full two weeks' stay contracted for, and he succeeded in the lower court. But the supreme court granted the motion of the defendant for a new trial, holding that the guests were justified in leaving the hotel for the reason that they did. The opinion treats at great length of the dangers of the fly and quotes from public health literature on the subject."

Dr. M. C. Sycle

Has returned to his home in this city, after a pleasure trip to Asheville, N. C.

Dr. Wade H. Carter,

Until recently of Eggleston, Va., is now located at Belspring, Va.

Dr. and Mrs. E. C. S. Taliaferro,

Of Norfolk, Va., recently motored to Gloucester County, Va., for a short visit to friends.

Dr. Otis Marshall

Has returned to his home in Culpeper, Va., after a visit to friends in Roanoke, Va.

Dr. J. W. Henson,

Richmond, expects to leave about the middle of August for a visit to Boston, Pittsburgh and Philadelphia, at which place he will attend clinics.

Dr. Caton Goes to Fairfax.

Dr. W. P. Caton, for the past year field director for the State Department of Health for the Pittsylvania County health unit, has accepted the position of county health officer of Fairfax, succeeding Dr. E. L. Flanagan, who recently resigned to enter private practice. The board of supervisors of the county has not only provided for a continuance of the health work in Fairfax during this year, but has promised to liberally support this work during 1921.

Danville Doctors Visit North Carolina.

Dr. and Mrs. E. H. Miller and Dr. and Mrs. J. E. Taylor, Danville, Va., with a party of friends, recently enjoyed an outing at Morehead City, N. C.

Dental Work Among the Children of Virginia,

Need for which has been so clearly and emphatically demonstrated by inspections made of school children the past year, is engaging more than the usual attention of health workers this summer. Several counties have already inaugurated dental clinics for the children and others are preparing to take up the work. In one county each child is required to pay $1.50 a year for dental attention.

This Promises To Be Banner Health Year in Virginia.

Should no plague or pestilence arise in Virginia the latter half of this year, 1920 promises to be one of the most healthful in the records of the Department of Health. Reportable diseases show a marked falling off over the figures of last year, notwithstanding the fact that a much larger percentage of the physicians of the State is being heard from regularly each month with statistics showing the incidence of disease.

Dr. J. D. Hinchman,

Of this city, recently suffered some bruises and the wrecking of his automobile when his car and a street car collided as he was coming from the garage back of his house. The space being narrow, neither Dr. Hinchman nor the motorman saw each other until they were too close to prevent the collision.

Dr. George H. Snead,

Fork Union, Va., has returned home after a visit to friends in Southwestern Virginia.

American Public Health Association.

Special cars for those attending the Association in San Francisco, Cal., September 13 to 17, will leave Boston and New York on Tuesday, September the 7th, connecting with a special train leaving Chicago, September 8. Those from this section who contemplate attending the meeting, may be interested in making inquiries regarding this trip from the secretary of the American Public Health Association, A. W. Hedrich, 169 Massachusetts Avenue, Boston, Mass.

Dr. and Mrs. Douglas Vander Hoof,

Of Richmond, were among the early summer visitors at White Sulphur Springs, W. Va.

Dr. and Mrs. Landon E. Stubbs,

Of Newport News, Va., were recent visitors at Dr. Stubbs' former home in Gloucester, Va.

Higher Fees Put Extra Work on City Physicians.

Effective May 1, Des Moines, Ia., doctors raised their day-time fees for calls from $2.50 to $5 a visit. This increase, it is thought by many, will cause a large number to delay in calling the services of a physician. It has already doubled the work on the city doctors who were, prior to this time, called in the majority of cases only in case of accident or extreme necessity.

Dr. C. Howard Lewis,

Richmond, was elected department surgeon in charge of Virginia, at the twelfth annual encampment of United Spanish War Veterans, held in this city in July.

Dr. G. B. Dudley,

Of Danville, Va., recently visited his former home in Martinsville, Va., and went from there on a trip to Asheville, N. C.

Dr. Virginius Harrison,

Richmond, has been named president of the board of visitors of Lee Camp soldiers' home, in this city.

The American Association of Obstetricians and Gynecologists

Will hold its thirty-third annual meeting in Atlantic City, N. J., September 20 to 22, under the presidency of Dr. George W. Crile, of Cleveland, O. Dr. E. Gustav Zinke, Cincinnati, O., is secretary of the Association.

Dr. and Mrs. W. B. Porter,

Of this city, enjoyed a vacation in July, motoring through the Valley of Virginia. They stopped at Warm Springs and several other resorts.

Dr. I. H. Goldman,

Who was practising in this city prior to entering the Medical Reserve Corps, is in Richmond again and located at 1101 Floyd Avenue.

Dr. and Mrs. A. C. Swimley,

Winchester, Va., have returned home after a pleasure trip to the Pacific coast, Dr. Swimley having gone out west to attend the meeting of the Mystic Shrine.

Dr. Waller Jameson,

Roanoke, Va., was a recent guest at Crockett Springs, Va., for a short stay.

Dr. W. H. Walcott

Has moved from Bemis, W. Va., to Clinchburg, Va., where he expects to enter general practice. Dr. Walcott is not only a splendid gentleman but is well-equipped for his work and we are glad to welcome him to our State.

Dr. and Mrs. J. R. Spencer

Have returned to their home in Hollins, Va., after a visit to Washington and other northern points.

The Layman as an Anesthetist Not Favored.

The National Anesthesia Research Society has been advised that fourteen county societies in California have in the last few months adopted resolutions favoring the limitation of the administration of anesthetics to regularly licensed physicians and surgeons. The House of Delegates of the California State Medical Association likewise took formal action on this subject.

Twenty-six States and Canada are now represented in the membership of the National Anesthesia Research Society.

Dr. Hugh Hill,

Of Locust Dale, Va., was the guest of relatives in Culpeper, Va., the last of July, en route to Mountain Lake, where he expected to be for sometime.

Dr. Henry R. Carter

And family of Ashland, Va., left recently for a six weeks' motor trip to the Yellowstone Park.

Attend Health Conference.

Dr. C. C. Hudson, of the City Health Bureau of Richmond, and A. H. Straus, bacteriologist for State Health Department of Virginia and of the Richmond Health Department, attended the national conference of State and city health officers, which was held in Galveston, Texas, August 3 and 4, to discuss the bubonic plague situation in America. The conference was called by Surgeon General Hugh S. Cumming, of the U. S. Public Health Service.

Dr. C. M. Hatcher,

Formerly of Lynchburg, Va., and a member of the class of '17, Medical College of Virginia, is now assistant surgeon in the U. S. Navy, and is at El Paso, Texas.

Dr. P. G. Hundley,

Until recently of Pembroke, Va., has re-located in Shenandoah, Va.

Doctors Needed for Government Service.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations to fill vacancies in several fields of service, and will furnish detailed information to those interested in any of the following examinations:

Associate in clinical psychiatry and psychotherapy, August 24;

Pharmacolgist in U. S. Public Health Service, August 31;

Medical interne at St. Elizabeth's Hospital, Washington, October 1;

Bacteriologist and junior bacteriologist, October 1; and

Bacteriologist, associate bacteriologist, and junior bacteriologist, December 1.

Palestine's First Medical Journal,

"Harefooah," (Medicine), published by the Jewish Medical Association of Palestine, has just made its appearance. It is a quarterly and its first issue is dedicated to the memory of the Jewish physicians and nurses, who made the supreme sacrifice in the years of upheaval in the Holy Land.

The objects of the medical association, as outlined in the quarterly, are to strengthen and co-ordinate the medical forces of the country and to collaborate with doctors outside Palestine; to give the medical work a national as well as a humane value; to prepare a native soil for Jewish scientists; and to help in the creation of the Hebrew University, at Jerusalem. The hospitals and clinics being established are planned as the beginnings of the medical college of the university.

Medical work in Palestine has advanced rapidly during the past two years, stimulated by the American physicians and nurses with the American Zionist Medical Unit, who have taught the native members of the profession all the latest ideas in medical work and sanitation. Clinics are held to demonstrate to the native doctors the most modern methods, and lectures are given at regular intervals.

For Sale—Doctor retiring from practice wishes to dispose of miscellaneous office and laboratory equipment, including operating and examining table, electrical engines and vibratory machines, hand microtome, sphygmomanometer, etc. Interested parties please address Z, care this Journal. (Adv.)

Location for Sale—Good six-room house, with hot water furnace. On main street of town, near railway station, in center of town of about 3,000 inhabitants, in Southwest Virginia. Two other physicians; collections good. $4,500 will buy this property and owner's good will. Good reasons for selling. If interested, address A. B. C., care this journal. (Adv.)

Obituary Record.

Dr. Benjamin I. Berman,

Of Norfolk, Va., while crossing a street on June 16, was struck by a mortorcycle, and died from his injuries a few minutes afterwards. He was forty-six years of age and was graduated from the Medical College of Virginia, Richmond, in 1909. He was a member of the Medical Society of Virginia.

Dr. George A. Boone,

Of Troutville, Va., died July 9, after an illness of only a week. He was seventy years of age and graduated in medicine from the University of Virginia in 1873. For over forty years, Dr. Boone had practised his profession in Boutetourt County and was much beloved in his community. Several children survive him.

Dr. Ivan W. McDowell,

Of Savannah, Ga., formerly of Butterworth, Va., died at his old home in Virginia, July 29, after a long illness. He was about thirty-five years of age. After practising in Dinwiddie County, Virginia, for sometime, Dr. McDowell took a post-graduate course in surgery and located in Savannah, where he practised until a few months ago when he was forced to give up on account of ill health. He was a graduate of the Medical College of Virginia in 1908.

Dr. William A. Cracraft,

Wheeling, W. Va., died July 26, at the age of seventy-seven years. He was a graduate in medicine from the University of Virginia and served in the war between the States as a member of the Twenty-seventh Virginia Infantry, Jackson's Brigade. He is survived by a daughter and one son, Dr. W. A. Cracraft, Jr., of Wheeling.

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Original Communications

HISTORIC PETERSBURG.

Excerpts from Local History.

"Three Centuries of An Old Virginia Town."

By ARTHUR KYLE DAVIS, Petersburg, Va.
(Copyrighted.)

THE PALIMPSEST.

Petersburg is a palimpsest written upon by each of the five periods of American history. Beneath the fair writing of this modern day there are still visible the red strokes of the Civil war. Beneath these, however, may still be read the story of a strong and cultured people, active and successful in the national period. Then come the grim tracings of the wars with England, and beneath them the sturdy strokes of the colonists have left their deeds "writ large," with markings of the Indian period still visible to the careful eye. Thus Petersburg is the most interesting city in America, for the reason that each age has left upon it an impress that has not been effaced by the attrition of the new era.

PETERSBURG AND THE APPOMATTOX.

No city in America has more vital links connecting it with the crucial periods of the national history than has Petersburg. It was the objective point of Cornwallis when he struck north after his Carolina campaign, and it was the objective point of Grant when he struck south after his Wilderness Campaign and Cold Harbor. In each case, it was the turning point of destiny, and at Petersburg were enacted the opening scenes of the last acts of the two great war dramas that closed at Yorktown and at Appomattox.

THREE CENTURIES.

Here lived perhaps Pocahontas and probably that "Queen of Appamatuck" that brought Smith water to wash his hands. Nearby was the site of the East India School established by the colonists, and yet nearer, the site of Pierce's plantation, where four of the settlers were killed in the first Indian massacre. Thus, Petersburg has a clear line of descent of three centuries. It was Appamatuck on Smith's map of Virginia in 1612; it was Peter's Point in the commercial history of 1712; it was the Cockade City in the war history of 1812, and it is the Petersburg of world history in 1920.

STORY OF THE STREETS.

The history of Petersburg is written in a general way in the names of its streets, although at first sight these names seem a hopeless jumble of nature, biography, mythology and the Bible. There are, of course, the usual proprietary names of Bolling, Jones, Gill, Tabb and Shore. In regular order of place and time, however, four marked divisions of streets may be traced, the practical, the patriotic, the classic, and the Biblical.

The early settlers, busy with practical affairs, gave to the streets names that were simple indicants, such as High and Low, River and Market, Sycamore and Oak. As the town spread southward from the river at the time of the Revolution and afterward, a furore of patriotism seems to have seized the inhabitants, and thus the next range of streets includes Henry and Franklin, Washington and LaFayette, Adams and Jefferson, Wythe and Marshall, Harrison and Fillmore, Clinton and Webster, with a general flourish in Liberty Street. Then as the tide of patriotic feeling abated in the wrangle of parties and sections, probably near the middle of the last century, the list of national names came to an abrupt close.

HEATHEN AND CHRISTIAN.

However, as the tide of population still spread southward toward that part of the city called by LaFayette "The Delectable Heights," new names had to be found, and probably some alumnus of the old Petersburg Academy, founded in 1794, or some new-fledged graduate of the University of Virginia, founded in 1825, showed his classical knowledge by suggesting to the Petersburg proprietors or powers the names of mythology. Thus the third range of streets bears such names as Mars and Apollo, Mercury and Cupid, and other heathen gods. Probably

the religious revival put an end to this honoring of the heathen divinities, as the fourth range of streets, on the very Heights, has entirely orthodox names in St. Matthew, St. Mark, St. Luke and St. John.

Halifax Street was the road leading out to Halifax, North Carolina, but for one square it retains its old name of Oak Street. One of the quaintest streets in the city has three names in a quarter-mile stretch. This was Back Street in the early days, but it was later given the aristocratic English name of Lombard, as fashion moved over from Blandford. After crossing Sycamore Street, however, it degenerates into business as Bank, and rises into the residential sections as High. As Blandford, once a rival but now a suburb, had preempted the name of Main street, the city named its main thoroughfare Sycamore Street from the two sycamores that once stood at the junction with Old Street. This street was formerly Sycamore only as far up as Oak Street, where its name changed to Walnut, a name fortunately preserved in Walnut Hill across the new viaduct at the head of Sycamore Street. In like manner, Phoenix Street today preserves the name of old Phoenix Hall.

Sycamore Street.

This march of Sycamore Street southward from the river to the Heights makes an interesting study in the old records. At first the name seems to have had a mere foothold from the Old Market to the foot of the present street, all Sycamore being then known as Walnut Lane. Just as the westward march of the English drove back the Indians, however, so the advance of Sycamore Street pushed the name of Walnut further and further South. In its second phase, Sycamore Street extended only as far as Back (or Lombard) Street, later it advanced to Powell's Tavern, then it extended up to Week's Tavern, and finally it reached The Heights. Thus Sycamore Street, after crawling two squares in its infancy, took a boyish hop to Tabb Street, a youthful skip to Oak Street, and a full man's jump to The Heights.

Blandford.

The Blandford streets also deserve mention. Here too are found, of course, a few proprietary names, such as Burch, Mingea, Poythress, and Taylor, but the two streets parallel with Main are Church Street and Little Church Street. It is an amusing thought that although these devout names were given, it was necessary to hold a lottery to help pay for the building of the old Blandford church. Main Street, like Duke of Gloucester Street in Williamsburg, was laid out in princely style. It was ninety feet wide, and at the Courthouse Square it broadened out one hundred feet on each side, making a generous square. There were hospiable homes along these generous streets, the old Haxall House marking perhaps the limit of the fashionable residence section before the exodus to Petersburg about 1800.

The Battlefields.

A quarter of a mile beyond Blandford is the Crater, the most interesting point in the line of intrenchments thirty-five miles in length which held the hopes of the Confederacy in 1864-65. Petersburg's great war fame rests upon the two facts that here occurred the longest and bloodiest siege in American history and that here occurred the most spectacular single event of the Civil War, the explosion of the Burnside mine. For ten months two armies of the Civil War, the Army of Northern Virginia and the Army of the Potomac, were here pitted in heroic combat. The line of entrenchments is still practically intact through a great part of its length, and at the Crater itself a well-preserved battlefield, scarred and monumented, is spread out like a map.

The Monuments.

Thus the Crater battlefield offers wonderful opportunities for the study of an actual battle of the Civil War. The fortifications stand untouched and the Crater itself remains just as it was left when the Union dead were transferred from it to the National Cemetery five miles distant. The lines of the two armies were so close together that a stone might be tossed from one into the other. The line of the excavation of the Burnside Pennsylvania miners may still be traced from the Union lines to the point of explosion under the Elliott Salient. The open fields and the rolling and wooded country still show the line of the covered way by which the Confederate troops advanced to recapture the lines after the explosion. On the Griffith farm itself, where the Crater is located, there is a wonderfully interesting museum of the war relics. Along the road are markers placed by the A. P. Hill Camp of Confederate Veterans, and the fields are dotted with granite monuments and markers erected by the Northern Posts. Especially noticeable are the stately monuments of Massachusetts and Pennsylvania,

which were unveiled with great ceremony by the governors and veterans of those States.

Around the Lines.

In the immediate vicinity of the Crater lie numerous battlefields, and a drive "around the lines" is both interesting and instructive. Two features of interest are a well-preserved "bomb-proof" that may still be entered, and the underground passage on the Davis farm not far from the two famous forts near the Crater—Fort Mahone (Fort Hell) and Fort Sedgwick (Fort Damnation). Just across the Jerusalem Plank Road from this underground passage is the modest marker erected to commemorate the citizen-soldiers' fight of the Ninth of June, 1864.

The Four Lines.

Roughly speaking, there were four lines of fortifications around Petersburg in the Civil War, two Confederate and two Union. The first Confederate line was built by Captain Dimmock, and this Dimmock line extends from the river at Skipwith and Puddledock all around the city back to the river at the Locks, the batteries being numbered from one to sixty-two. When the Union forces took Battery Number Five, General Beauregard built the second and inner line of Confederate fortifications. The Union line in front of the city thus embraced part of the Dimmock line, but it was extended to the Confederate right until both lines reached for miles to Hatcher's Run. This Union line was thus the third circumvallation. After the Cattle Raid, however, when "Rooney" Lee made his raid to the rear and carried off thousands of cattle, General Grant built a fourth line, this time a reverse line facing to the rear so as to prevent an attack from that quarter. This reverse line joined the main line of fortifications about Fort Fisher, and between them ran Grant's military railroad. A sketch of the entrenched lines shows between thirty and forty forts on these lines of Grant's army.

Three Points of Interest.

As the Crater and the monuments form a focus of interest on the east of the city, so there are three points of special interest on the west, showing the gradual swing of the battle line to the south and west until Lee's lines of supplies were cut.

The first of these is Rohoic Dam, where the pent waters of a stream were used to strengthen two miles of the worn Confederate line. This same device had already been used on a smaller scale in the Gracie Dam on the east of the city. The second and more famous spot is Fort Gregg, near the Central Hospital, the scene of one of the most gallant defences in all history. There were only two hundred and fifty Confederates in Fort Gregg, but when it fell at seven o'clock on the fateful morning of April the second, 1865, over five hundred of the Federals had fallen before it, and only thirty defenders were left. The third and most sacred spot is shown by a marker on the Dinwiddie road about three miles from the city, where General A. P. Hill was killed while riding in front of his lines. In memory of this great soldier, who gave his life for the city, the local camp of Confederate Veterans is called the A. P. Hill Camp.

Summary of the Siege.

Petersburg was the cardinal point of the Civil War in its last year. All the great war moves hinged here. Even the distant military movements of this crucial period "pivoted" on the Cockade City. The wide sweep of the subsidary operations is most impressive. Early's raid on Washington and Sheridan's raid in the Valley were both undertaken with reference to Petersburg and ended at Petersburg. Even Sheridan's march to the sea became finally an advance on Petersburg, and Johnston's fight at Goldsboro was to protect Petersburg.

The Varied Strategy.

But it is the varied strategy of the siege itself that makes Petersburg unique in our war annals. Surprise attacks, sustained assaults, pitched battles, feints and diversions, an underground explosion and an artificial lake, trench and sap—every artifice of war was employed. The Petersburg terrain was the arena of the greatest "hammer and rapier" duel in history. Grant's sledge-hammer blows dented, but did not crush the defense, and Lee's rapier thrusts could reach no vital part of his opponent's line. Grant had to "move by the left," and Lee's line "stretched so long as to break." Surely the central area of this historic combat should be preserved intact. Not Waterloo nor Gettysburg is more sacred ground.

The Thirteen Battles.

Of the thirteen battles outside the breastworks here may be mentioned in the order of time, Rives' Salient, Battery Number Five, Avery's Farm, Weldon Railroad, The Crater, Fort Wadsworth, Fort Stedman, Fort Mahone, Fort Fisher, and Fort Gregg. As a study of

masterly attack and defense, neither Yorktown nor Vicksburg may be compared to Petersburg. It is perhaps only in Wellington's Peninsular campaign that such bravery and persistence in attack and such heroic valor and devotion in defense may be found. And the impression that remains with the visitor sixty years after the battles that were fought is not one of regret or apology, but rather one of pride that here, where their fathers achieved their independence, two armies, composed of the sons of the same indomitable race, held the world in awe and Fate itself in suspense with their Titanic struggle.

Old Blandford Church.

Probably the most unique memorial in America is old Blandford or Bristol Parish Church. Few spots may be compared with it in sacredness or inspiration. "Standing in quiet beauty amid acres of heroic dust" it thrills the visitor as does no other spot save Mount Vernon itself. Around it have surged the combats of two great struggles, but two war dates stand out in local history. One is the Ninth of June, 1864, when the volunteer citizen-soldiers held back Kautz's raid; and the other is the thirtieth of July, 1864, when the Burnside Mine was exploded and the Crater fight took place. Both of these events have fitting memorials here, where thirty thousand Confederate dead lie buried, while there are close at hand stately monuments to the thousands of Union soldiers that rest in the Union cemeteries.

History and Romance.

Romance and pathos combine with history around the old church, and about it have ebbed and flowed the very life tides of the city and nation. In the southeast corner of the churchyard, under foliage of ivy and periwinkles, lies buried General Phillips, called by Jefferson "the proudest man of the proudest nation on earth." Here it was that Steuben made his first stand against Phillips and Arnold in the defense of Petersburg in the Revolution. Here it was that the Washington memorial service was held in 1799, and here in 1826 was held the Jefferson memorial service. Parson Syme was interrupted in this service by the alarm of the great fire, second only to the greater fire of 1815. In the shadow of these walls was fought the Jeffreys-Johnson duel in 1795, and the Boisseau-Adams duel in 1821. In the church itself in 1844 Antommatti killed himself for love, and just outside the churchyard (as a suicide might not be buried in holy ground), stands the tombstone, paid for with money collected in Corsica, with the inscription, "Honor was his only vice."

To the east of this stands another tombstone worthy of notice, commemorating Captain and Mrs. George C. Gary, who in 1824 sailed in the ship Cyrus with the first Petersburg colony of negroes for Liberia.

In the Civil War, the bloody lines of circumvallation barely missed the confines of the cemetery, and at least one monument—that of Rev. Wms. E. Davis—was shattered by the artillery fire.

A Virginia Pantheon.

Thus, old Blandford Church, with its colonial and revolutionary history, with its simple memorial tablet to an early rector, with its beautiful D. A. R. memorial in honor of the men of the Revolution, with its eleven Tiffany Apostle windows commemorating the Confederate States (and two to Missouri and Maryland), with its eloquently simple U. D. C. honor roll of the citizen-heroes of the ninth of June, with its stately marble tablet to the immortal Crater Legion, and with its touching memorial to the leader of their charge, seems a real focus of American history and a veritable Pantheon of Confederate heroism.

The Burk cenotaph and the Blandford Poem connect the church also with American literature. The famous lines on the old church make the nearest approach to an American "Elegy." This poem is certainly the most beautiful spontaneous tribute to any church in America. The cenotaph to John Daly Burk, the fiery Irishman and the author of the most famous early history of Virginia, is just outside the walls of the church, and in the distance may be seen Fleet's Hill, where Burk fell in a duel.

The McRae monument near at hand completes the war memorials of the church. Not only does the inscription tell of the valor of the Petersburg Volunteers of 1812, but the fine panels of the enclosure show also the arms that they bore. The flint-lock muskets and sabers crossed; the stiff military cap and pompon; the belt and ammunition-box; the garlands and wreaths; the American shield with the eagle and cannon; the battle-axes at the corners and the seventeen stars above the rail; —all of these things bespeak the robust militant patriotism of an earlier day. Here all the panoply of war is displayed in this memorial of the

daring of one company, while yonder in the church the deeds of tens of thousands are commemorated by simple tablets and holy emblems, with not a sign of war to mar the sacred precincts.

The Appomattox.

The story of Petersburg begins with the river. The Appomattox, like other Virginia rivers, was both an entering wedge of civilization and a colonial link and highway. Here Petersburg history begins with the planting of a fort by the settlers in the time of Governor Berkeley, and the site of old Fort Henry is today the spot of earliest authentic interest. The fifteen-mile river stretch from Bellevue just above Petersburg, to City Point at the junction of the James, is scarcely surpassed in America for variety and intensity of interest. Every bluff was a plantation home and every wharf was a port of entry.

Old Fort Henry, built in 1645-6, was the nucleus of the original town, and a suburb of the city to-day is said to be the site of the Indian village destroyed in 1676 by the "Virginia Rebel," Nathaniel Bacon.

Matoax to Fort Henry.

Randolph of Roanoke was born on these banks, and his father and mother lie buried within sound of the falls of the river. These two graves, with their quaint Latin inscriptions, lend special interest to Matoax above the falls. Matoax was the private name of Pocahontas, and it was from Matoax that John Randolph's mother fled with him to "Bizarre," at the time of Arnold's threatened invasion. Nearby are Olive Hill, the Atkinson home, and Bellevue, the home of John May, where Johnson's Indian Narrative opened. Across the river from Matoax the line of suburban estates begins with two other Atkinson homes, well-preserved Mansfield and Sysonby. Following the river to the city limits, the first historic mansion of the colonial days is Battersea, the home of the Banisters. This home, an excellent example of colonial architecture, was occupied during the Revolution by the British under Simcoe, and was visited after the war by M. de Chastellux and was described by him in his Travels.

On a high bluff at the foot of the falls stands the Dunlop house, built on the site of old Fort Henry; and directly across the river is Fleet's Hill, where Burk fell in his famous duel with Coquebert in 1808.

Campbell's Bridge.

Here Campbell's bridge spans the narrow gorge, and it was at this bridge that Burk's eleven-year-old son, John, learned of his father's death. He had spent the week end at Olive Hill with his schoolmate, Tom Atkinson, and on that Monday morning the two boys had seen the duelling ground wet with blood as they came past Fleet's Hill on their way to school in town. John Junius Burk was later Judge Burk, of Louisiana, when a Petersburg Robertson became Governor of that State, and Thomas Pleasants Atkinson afterwards wrote his reminiscences of Petersburg in the interesting "Moratock Papers."

It was over Campbell's bridge that General Lee's army passed on the night of April 2, 1865, in the retreat that ended in the surrender at Appomattox a week later.

Peter's Point.

A short distance down on the south bank and in the very heart of the city itself is the birthplace of Petersburg, the old Trading Station of Peter Jones, from whom the city derived its name long before 1733, when Colonel William Byrd with his four companions "laid the foundation" of the two cities, Petersburg and Richmond as told in his Westover Manuscripts. It is worthy of note that two Petersburgers, Banister and Jones, were among the four companions of Colonel Byrd in this "founding" of the two cities, and while "Shocco's" became Richmond, "Peter's Point" became Petersburg.

Opposite the City.

Further down the river on the northern bank are the high bluffs overlooking the city now called Colonial Heights. Here may be seen the remarkable box hedge at Oak Hill, said to be the oldest in America. This is on Archer's (or Hector's or Dunn's) Hill, from which LaFayette shelled Petersburg during the Revolution, when it was occupied by the British under Arnold, Phillips and Cornwallis. Here was Hector's Spring and the bridge over which the gay cavalcades came trooping on the Fourth of July long ago. Winding down from Colonial Heights is the road along which Washington came with his escort of honor on his historic visit in 1791, and along which a third of a century later LaFayette came into Petersburg in 1824, when he was welcomed as a hero by the city. On the next bluff is historic Violet Bank, the home of the Shores, the first headquarters of General Lee during the siege of Petersburg.

The Conjuror's Neck Road leads from Violet Bank past Roslyn, the home of the Gambles, to Brick House, the home of the Kennons. In the lowlands here opposite the city is the suburb of Pocahontas, once "Witten Town," where stood for years an interesting relic of Indian times, the "Pocahontas Basin," now transferred to the Central Park.

Pocahontas Bridge.

Connecting this suburb of Pocahontas with the city is the historic Pocahontas bridge. Torn up on April 26, 1781, by the retreating Americans under Steuben, rebuilt on the next day for the passage of the English under Phillips, and then burned while the shipping flamed in the harbor, its ruins were seen by M. de Chastellux, when in the same year he visited Spencer's Tavern beside the bridge, and praised the fish and the music of the tavern. Here in 1812 an armed schooner fired a salute of honor to the departing Petersburg Volunteers; and here, too, in 1858, the Petersburg Artillery fired a salute of thirteen guns on the arrival of the Southern Star, the first steamship that ever came to Petersburg, about ten years after the first telegraph message was sent from Petersburg to Norfolk. Below the bridge lies the harbor, and adjoining the town is the suburb of Blandford, which was once a center of industry and fashion. Here Haffey established the first nail factory in this part of the country, and here the Old Tavern and Boyd's Tavern and the Rising Sun were places of resort. Here a famous Petersburger had his law office in a modest building, still standing, before he became the hero of two wars as General Winfield Scott.

Early Events.

Two famous early expeditions set out from Petersburg. Thomas Batte and his companions set out in 1671 to explore the Western country by command of Major-General Wood of Fort Henry, and these men made the first crossing of the mountains by the English. It was from Bellevue, still a suburban home of Petersburg, that John May and Charles Johnson departed in 1790 for that fateful journey down the Kanawha and Ohio that was to bring death to May and suffering and fame to Johnson, as told in his famous Narrative. Two other expeditions ended at Petersburg, for here Colonel William Byrd relapsed into luxury on his return from the "Dividing Line" in 1728 and here he laid the foundation of the city on his return from the Land of Eden in 1733, as related in the Westover Manuscripts.

Four Banquets.

Not all the historic sites of Petersburg, however, have been made famous by deeds of war and daring. The arts of peace and the amenities of life have also their memorials. Especially interesting are four famous banquets in which Petersburg showed its hospitality. Here Washington was feasted during his southern tour in 1791, and here LaFayette was feted fifty years after his first visit, during his American tour in 1824. Here, too, Aaron Burr, on his way south in 1805, was honored with a great banquet, equal to those that marked the coming of the Father of his Country and of the Hero of Two Worlds.

More than a century later, in 1909, President Taft was the city's guest of honor at the most brilliant fete of all, the Centre Hill Banquet, when a thousand guests sat down to luncheon with him at tables of living turf, with responses to toasts by Ambassador Jusserand, Admiral Sigsbee, Professor Alderman and others, and when the President himself made a notable address to twenty thousand people.

Famous Sites.

Here are found Indian relics, sites and traditions; one of the first colonial forts, the first permanent outpost south of the James; an early trading station, from which the city derives its name; the two famous "Castles" of the founder's grandson; old taverns, duelling grounds and race-courses; sites of the Revolutionary period, made famous by the great leaders on both sides; a fine colonial mansion used as headquarters by a British general and described by de Chastellux in his Travels; the site of the historic home, in which General Phillips died; the old bridge, torn up, rebuilt and burned by the contending armies on two successive days; the church where Whitfield preached his sermon to critical ears, and the spot where the fiery preaching of the evangelist Williams was cooled by a fire-hose.

About 1800 began another series of historic sites. Here was the early theater, where the Petersburg Thespians acted, succeeded by one of the most famous early theaters in America, which was visited by all of the great actors of the earlier part of the century. Here Burk wrote the best early history of Virginia and fell in a duel. Asbury's Journal tells how Petersburg was often visited in his itinerary and how

he and Bishop Coke found warm welcome. The law office of General Winfield Scott may still be seen, as may the home where Calhoun's body lay in state at a later time. The very streets of the city in definite series record the national period of American history.

The Civil War left its impress upon the city and made a third group of historic sites. The three headquarters of General Lee mark the gradual recession during the longest siege in American history. President Davis stopped here on his way to Richmond, and Lincoln and Grant made two homes famous by their visits.

Four Famous Taverns.

Four old taverns of Petersburg have a part in history. Probably the oldest was the Golden Ball Tavern on Old Street, where may still be seen a part of the old building at the corner of Market Street, almost opposite Peter Jones' Trading Station. Here the British officers were quartered during the Revolution, and here the first famous city banquet was given to President Washington in 1791. This visit is also notable for the reason that at Petersburg Washington told his only recorded untruth, in fixing his time of departure "before eight" and leaving at five to avoid the dust of an escort. At this time the Golden Ball Tavern had become Durell's Tavern, and in 1823 it had become Tench's Tavern. It was probably as Tench's Tavern that it had its iron gong struck at noon by an iron negro with an iron mace. Another tavern of Revolutionary fame was the Long Ordinary, a mile west of the center of the city, where were the headquarters of General O'Hara, who later surrendered Cornwallis's sword at Yorktown. The third of the historic taverns was Armistead's, better known later as Powell's Tavern. Washington is said to have spent the night here, and it is probable that it was here that the banquet to Aaron Burr was given in 1805. Burr had killed Hamilton and was far from popular at the time, and this public banquet in his honor seems strange. Probably it was arranged by the effort and influence of Burk, who had been aided by Burr in his escape from the wrath of President Adams at Boston.

As Burk was a frequenter of Powell's Tavern, the Burr banquet probably occurred there. In this connection, it may be added that a Petersburg lawyer, a famous wit, who was popular as "Jack" Baker, was one of the counsel of Aaron Burr in his trial at Richmond on the charge of treason on account of the projects undertaken during this trip to the south.

The last of the four famous taverns was Niblow's Tavern on Bollingbrook Street. Here it was that LaFayette banquet was given in 1824 and in 1828 the tavern was replaced by Niblo's Hotel, a sixty-five thousand dollar structure still standing, which was built by William Niblo, afterward proprietor of Niblo's Garden in New York. The hotel is now the Stratford.

Other Taverns.

Of secondary interest were several other taverns. Dodson's Tavern on High Street is memorable for the fact that here Theodosia Burr made famous cakes during her stay there with her father. Brewer's Tavern stood on the southeast corner of Sycamore and Bollingbrook Streets, and on Lombard Street was the "Double Inn" just off Sycamore. The Virginia Inn stood on a cross street between Lombard and Bollingbrook. There was also Worsham's Tavern on Old Street, afterward the home of J. B. Ege, whose bell gave the first alarm of the fire of 1826; and Weeks' Tavern on Sycamore Street, where Bowman's stores now stand. This tavern was a convenient stopping place for the country people coming into the city through Weeks' Cut, now Wythe Street. It was at Hannon's Tavern on Bank Street in 1824 that the foundations of the Mechanics' Association were laid.

The Theatres.

The present Academy of Music is the fourth theatre in the history of the city. Queerly enough, the first definite mention of the first theatre seems to be the account of the Methodists in the Old Theatre on Old Street, near Murray's Mill. The account is still extant of the evangelistic meetings of Williams, McRoberts and Jarratt in this Old Theatre in 1773. They preached with fervor to large congregations, but their meetings were interrupted by the busting in of doors, the throwing of squibs, and by the deluging with water from fire hose. The second theatre was a poor affair, a small wooden building that stood on Fifth Street, behind the old Dunlop place, near the school of Parson Syme. Here the Petersburg Amateur Thespians, in 1803, acted Burk's play of Bethlem Gabor, and here the actor Placide and his company are known to have acted in the same year, when they gave the School for Scandal at a benefit performance. A second play written for the Petersburg Thespians was Nolens

Volens, or The Biter Bit, by Everhard Hill of Blandford. The Thespians were the best young men of the day, John Monro Banister, Townsend Stith, Roger Atkinson Jones, Thomas Bolling Robertson, Benjamin Curtis, Richard N. Thweatt, Edwards, Stainback, and others. Among them was the Petersburg poet, John McCreery, who wrote "The American Star," the rival of "The Star Spangled Banner," and who also wrote with Burk the songs that are said to have given Moore the idea of the Irish Melodies.

The great playhouse of the city, however, was the Petersburg Theatre, built probably about 1815 or 1820, on the northwest corner of Bollingbrook and Fifth Streets. This theatre was a copy of Covent Garden Theatre in London, with a commodious stage, a large pit, a semi-circle of stalls, and two galleries. Junius Brutus Booth is said to have played here his second engagement in America, his first engagement having been in the Marshall Theatre in Richmond. It was due to the money and efforts of a Britisher named Caldwell that this playhouse was built in such handsome style. Mr. Caldwell was a successful merchant of the city, who owned and named the estate at the head of Sycamore Street still called Mount Erin and now the stately home of the Camerons. Most of the famous actors of the second quarter of the century played here, and this is the theater so often mentioned in the annals of the American stage. It was burned in 1849, however, and there are many interesting facts connected with the hall that succeeded it.

A Famous Park.

The oldest of the parks in Petersburg was Poplar Lawn, which keeps its beauty, but not the charm of its old name, as Central Park. Instead of the beautiful grove of to-day, however, it was formerly a perfect stretch of greensward, a lawn indeed.

On Poplar Lawn the Petersburg Volunteers were encamped in 1812 before they set out for the Canadian border, and on October 21, 1812, Benjamin Watkins Leigh duly presented them with a flag from the ladies of the city. Here in 1824 came LaFayette and his friends from the banquet at Niblo's Tavern to hear speeches and to listen to the songs of four hundred school children from Anderson school. It was either here or at Centre Hill that Judge James H. Gholson on January 2, 1847, on the part of the ladies of the city, presented a flag to Captain F. H. Archer's company on the eve of their departure for the Mexican War, and the members of the Petersburg bar presented a sword to Captain Archer himself.

The city bought the Lawn for $15,000 in 1844, and the Fourth of July parades began and ended here. In fact, all the military companies of the city used to encamp on Poplar Lawn on the evening of the third, and the parade of the Fourth was followed by the reading of the Declaration of Independence and an oration by some distinguished citizen. The Lawn was not only a drilling-ground for soldiers, but also an open-air forum, where in the old days such orators as Henry Clay addressed the people.

The most dramatic day in the history of Poplar Lawn was the nineteenth of April, 1861, immediately after the secession of Virginia, when six fully-equipped companies were enlisted into the service of the Confederacy, leaving Poplar Lawn the next morning for the defense of Norfolk.

A true story of Poplar Lawn shows the straits to which the city was reduced during the siege. As the Union shells were falling around the hospital on the Lawn, it was necessary to hoist a hospital flag there. No such flag of truce could be found in the city, and for lack of any other yellow cloth the yellow silk petticoat of a patriotic lady of the city was hoisted on the hospital pole. This petticoat is still preserved.

Historic Churches.

Several of the churches of Petersburg should have special mention. St. Paul's Episcopal Church, the child of Old Bristol Parish Church, was first built in 1802 on the site of the present court-house. It was later moved to Sycamore Street, opposite Franklin, and when this church was burned in 1853, the present edifice on Union Street was built. The moving from Blandford was in the time of Parson Syme, to whom a memorial tablet should be placed in Old Blandford. Before the church of 1802 was built, Cameron and Syme preached on alternate Sundays in the Blandford Church and in the Petersburg courthouse, but to small congregations, as religion was then at a low ebb in this section. It was in this "new brick church," built 1802-6, that Burk delivered an oration five weeks before his death.

On Union Street, where the Roper warehouse now stands, was the most famous historic church building of Petersburg. The primacy was due not only to the fact that this church was the

child of the first church of any denomination in Petersburg, the old Methodist church that stood perhaps first on Old and afterward on Market Street at the junction of Friend Street, but especially to the fact that here was held the first General Conference of the Methodist Church, South, after its separation from the (Northern) Methodist Church. Thus this old building was the scene of the organization of the large body of "Secessionists" that still maintains a separate existence. At this conference, Bishop Andrews presided, and there was a dramatic moment when Bishop Soule, the general superintendent of the whole Methodist Church of the country, announced his allegiance to the Southern branch of the Church. The congregation of this church afterwards built Washington Street Church, and the Union Street became a negro church until it was torn down.

The original building of Tabb Street Presbyterian Church is now A. P. Hill Camp Hall. A new church was built directly opposite, and when this was burned, the present edifice was built. This church is historic through memorable sermons during the secession times and the building itself, though dignified and beautiful in its combination of classic and Gothic types of architecture, drew a humorous reference from Max O'Rell on his lecture trip to Petersburg. In "A Frenchman in America," he speaks of it as a Greek temple with a steeple, and compares it to a Roman senator with a toga and a stovepipe hat. The Second Presbyterian Church on Washington Street is also historic through the fact that it was built during the Civil War, the tower of the old church on Baltimore Row on High Street being used during the late years of the war as a shot tower. Grace Episcopal Church, on the other hand, having moved from the brick church on Old Street to worship in the basement of the new church just before hostilities began, was not able to complete the High Street building until 1870. The First Baptist Church on Washington is memorable as having been built to replace the one struck by lightning and burned in 1865. The first church of the Baptists of the city is now the rear of the Builders Supply Company building, and the second Baptist church built in the city stood at the corner of Market and High Streets

Bollingbrook.

Even more famous than the Battersea house already mentioned is "East Hill" or "Bollingbrook," the site of the colonial home of the Bollings. This house was twice the headquarters of the British during the Revolution. All the inmates had to take refuge in the cellar during the shelling by LaFayette, and one cannon-ball passed through the house and killed the cook. Here Arnold, with his Saratoga limp, dandled the children, and here General Phillips, lying on his death-bed, complained that the Americans would not even let him die in peace. From this home Cornwallis wrote in boastful vein of LaFayette, that "the boy" could not escape him now.

The Castles.

Two famous wooden "castles" in the city were built by Peter Jones, the Second, grandson of Peter Jones the trader, and both are now occupied as residences. The first is "Folly Castle" on Washington Street, built in 1763 and later occupied by the Hintons. This house was originally named from the folly of its then childless owner in building so large a house. Davis Street, which bordered the estate, was formerly called Folly Street.

The second of the "castles" is "Stirling Castle" on High Street, now the residence of Mrs. Spotswood. This was originally the country house of Peter Jones the Second, but after his death his daughter had the house moved to Petersburg and erected on the spot where it now stands. Two other wooden mansions of somewhat similar style have an interesting history. One is the Bennet-Shore mansion at the corner of Adams and Marshall Streets, now the Orr home. The original house, built more than a century ago, was an exact copy of the Shore home known as "Violet Bank," built a few years earlier but later destroyed by fire. On Adams street behind the Orr house is the old Johnson-Wyatt mansion, now occupied by Mr. Barham, where the body of Calhoun lay in state.

Another attractive old-time mansion of local interest is the West Hill house, with its solid basement and quaint dormer windows. This house was built by the Bollings for the steward of their estate, and it faced their long line of tobacco warehouses that stood on West Hill.

The War Mansions.

Three of the mansions of Petersburg are especially famous in the history of the Civil War. These are the Beasley mansion on High Street, interesting as the second headquarters of Gen-

eral Lee; the Seward mansion on Market Street, where occurred the last meeting of Lincoln and Grant before the surrender of Lee; and the Centre Hill mansion, which still shows the effects of the shelling of Battery Number Five, having cannon-hole in the northern wall and bullet-holes in the attic doors. This was General Hartsuff's headquarters, and it was here that Lincoln, just after the evacuation, made his famous *mot*, "General Grant seems to have attended sufficiently to the matter of rent."

One of the interesting features of this mansion is the underground passage, which led out to Henry Street and was used as an entrance by visitors. The broad passage terminated on Henry Street in a pavilion or porte cochere, where the visitors dismounted from their carriages, entering the house on the basement level and going upstairs to the parlor floor, in the English rather than the American style. Some fifty feet of this passage may still be entered, and it was lighted from above so as to be quite bright and well ventilated.

Old Hotels.

Niblo's Hotel, now the Stratford, was for many years notable as the Bollingbrook, where many of the prominent men of the second quarter of the century were guests, and where almost all of the southern leaders were familiar figures during the siege of Petersburg. The Fourth of July oration was often delivered from the balcony of this hotel, in the period after the popularity of Hector's Spring and before the Poplar Lawn was used for this purpose.

One of the most dramatic incidents in the history of Petersburg took place just at the corner where this hotel stands. Here was erected the only Secession pole ever raised in Petersburg, bearing the Secession flag called the Bonnie Blue Flag, a blue flag with a single white star. That night a crowd of one hundred men pulled down the pole and destroyed the flag, one man being killed in the melee. For Petersburg was a strong Union city, sending Union delegates to the Virginia convention whose votes were not cast for secession until President Lincoln published his call for troops.

An interesting war time story is told in connection with the Longstreet banquet given in Bollingbrook hotel during the siege. A gallant Petersburg private, fond of fighting and of good cheer, but impatient of the routine of camp, had that day "run the block" and come into the city. At the banquet this prince of good fellows was seated at the right hand of General Longstreet and opposite his corps commander, General A. P. Hill. During the dinner, a detail of soldiers appeared at the door, sent to arrest the private, and he was saved only by the prompt action of General Hill, either by writing a pass for him, as some say, or by making him a member of his staff on the spot, as others claim. This was the well-known "Dick" May, of the same family as the John May who ventured with Johnson among the Indians in 1790.

Powell's Hotel, on Sycamore Street, succeeded Powell's Tavern in 1843, and was a popular resort until it was destroyed by fire. It was succeeded in turn by the great Iron Front building, where provisions were distributed for the soldiers during the war, by the Christian Association Buildings, and by the present stores. So often has this area been burned over in the last half-century. The Petersburg Hotel occupies part of the site of Powell's Tavern.

The Historians.

The historian John Daly Burk had no home of his own, but boarded at the house or Mrs. Swayle (or Swail) on Old street, near the old Le Moine house. Burk was a lawyer with an office on Bollingbrook Street, near Phoenix. He was a great friend of John Randolph, who aided him in securing materials for his history. His famous quarrel with Coquebert at the time of the Berlin and Milan Decrees occurred in the Powell Tavern on Sycamore Street, where the Rosenstock Stores now stand. He fought the duel in a ravine back of the Normal School and was buried with military honors in an unmarked grave at Cedar Grove, the residence of General Joseph Jones in the southwestern part of the city. This land, later the property of A. G. McIlwaine, was near the later site of the Mount Airy Railroad Shops.

This duel was not the only one that interrupted the writing of this Virginia history. Skelton Jones, who began the fourth volume, also fell on the "field of honor" after writing sixty-three pages, and the history was completed by Girardin.

The second Petersburg historian, often called the Virginia **Old Mortality,** was Charles Campbell. He had his residence here, as his father was the first bookseller of the city. In addition to his excellent **History of Virginia,**

Campbell wrote also a **Life of Burk** and many antiquarian essays.

Three other Virginia historians should be mentioned here. Both William Stith, who wrote a **History of Virginia,** and Bishop William Meade, who wrote **Old Churches and Families of Virginia,** served for a short time as rectors; Stith at Old Blandford in 1739, and Meade at St. Paul's in 1839. A third rector of long service, Philip Slaughter, wrote the history of Bristol Parish and also of St. George's and St. Mark's Parishes.

The Warriors.

Within the city was also the home of Captain McRae, who led the Petersburg volunteers in the War of 1812, and who won for Petersburg from President Madison the title of "The Cockade City of the Union." Here is also the home of Colonel F. H. Archer, who led the Petersburg Volunteers in the Mexican war, and also commanded the old men and boys on the ninth of June. On Market Street is also the residence of General Mahone, the hero of the battle of the Crater. It is necessary, however, to go outside the city limits to a farm beyond the Mayfield estate to find the birthplace of the Petersburger most famous in the war annals of America. Here was born General Winfield Scott, hero of the war of 1812 and of the Mexican war and commander-in-chief of the American forces at the opening of the Civil War. General Scott had a law office in Blandford and later in Petersburg, probably on Bollingbrook Street, until he abandoned the law for the army in 1808. That he was not entirely a hero in the eyes of his fellows, however, is shown by the famous toast of a distinguished Petersburger, Benjamin Watkins Leigh, at the Eagle Tavern dinner, given in honor of General Scott after the War of 1812. In the midst of the chorus of praise of the hero of Chippewa and Lundy's Lane, Leigh's simple toast was, "Well, Scott, Here's to Luck."

Historic Schools.

Several of the schools of Petersburg are closely connected with its history, and three of them are part of the story of the siege of Petersburg. Earliest of these is "The Academy" incorporated in 1794 and continued until 1835, when all its property was transferred to Anderson Seminary, named in memory of the Scotchman who left a bequest in 1819 for the education of the poor of the city. The Academy was succeeded by the Petersburg Classical Academy, which was taught by Principal Saunders in the building later used as the public high school on Union Street, where the Y. M. C. A. now stands.

The first academy is memorable both for its origin and also for a famous teacher. In the early years of the last century, about 1808, John Davis, an Englishman, was a teacher here. He wrote a novel about Pocahontas that was ridiculed by the Edinburg Review in 1806, and also a volume of Travels in America that was praised by the New York Independent in 1910, when it was honored with a reprint by Holt.

Anderson Seminary.

New Year's Day, 1821, marked a new era in education in Petersburg, for then the first germ idea of general education arrived from over seas and found fertile soil and favoring conditions in this city. The "plan of education for poor children" reported on that memorable day and adopted by the Common Hall a month later, forms a striking landmark in the history of local education, and marks the beginning of the Anderson Seminary.

David Anderson, a native of Scotland, but long a member of the Common Hall and Chamberlain of the City of Petersburg, left a bequest of some ten thousand dollars for the education of the poor children in "spelling, reading, writing and arithmetic."

The great success of the plan is shown by the fact that soon afterward (in 1824), four hundred pupils of the school gathered on Poplar Lawn to sing patriotic songs on the occasion of the visit of General LaFayette, and by the further fact that about a decade later the Petersburg Academy, founded in 1794, was absorbed by the Anderson Seminary, as already stated. Thus Anderson Seminary, nearly a century old, is the link connecting the local public school system of to-day with the beginnings of the movement for general education in America. It is most fitting that the one monument erected in Blandford churchyard by the "Corporation of Petersburg," is "Sacred to the Memory of David Anderson, a Benefactor and a Friend of Man." The new High School is on the site of Anderson Seminary.

School for Boys.

Two private schools for boys of the second half of the last century have an especial interest to the student of local history. On Sycamore Street just above Central Park is the one-story building that was the schoolhouse of Mr.

George E. Christian during the Civil War. Here on fateful ninth of June, 1864, the boys of Christian's school were preparing their French lessons, not knowing that their teacher, Prof. Staubly, lay dead on the Rives' farm, two miles away, where he had aided in the brave defense that delayed General Kautz and saved the city for nearly a year.

Directly opposite the Park on the same street, at the corner of Fillmore, is the vacant lot where stood after the war the wooden building of McCabe's University School. This building was afterwards bought by the Christian Church and removed to Washington Street, where it stands to-day opposite Pine Street. The University School was known throughout the land for a third of a century. Although it was established after the war, it is part of the war history of the city for the reason that its distinguished headmaster was the gallant young adjutant of Pegram's Battery and later became the historian of the Battle of the Crater in his eloquent address before the Army of Northern Virginia.

The third school that is a part of the war record of the city is the Southern College, whose buildings stand on Sycamore Street, diagonally across from Central Park. This institution is historic through the fact that it was chartered by the Confederate legislature and carried on its work of training young women during the siege of the city.

Epitome of History.

Thus the historical sites, memorials, and buildings of Petersburg, with the grim cordon of forts and battle lines of two great wars, form a series of object lessons in American life in peace and war, and the city itself may fairly be called an epitome of American history.

FIRST AID TO THE INSANE.

By William F. Drewry, M. D., Petersburg, Va.

What first to do for and how to deal with one who is suffering from mental unsoundness is often difficult to determine. Upon prompt and proper treatment in the beginning of an attack depends, in many instances, the final outcome. The physician's diagnostic, therapeutic, and prognostic acumen and clear judgment are frequently put to the test. Giving a medical opinion regarding one's mental condition is often a serious responsibility. Whether a given individual has a psychosis, is suffering from hysteria or other neurosis, temporary mental disturbance due to narcotic drugs or alcohol, or delirium from fever, etc.; and, if mentally unsound, whether treatment at home should be attempted or the patient advised to go voluntarily or be judicially committed to a suitable sanitarium or hospital, are always questions which, in the interest and welfare of the patient, the family, and the community, should be most carefully considered. Undue haste on the one hand, and delay on the other, should be avoided, lest the effects upon the patient or others be disastrous.

To know where mental soundness ends and mental unsoundness begins in a given case is not possible. The transition from a normal to an abnormal mental condition and *vice versa* comes about more or less gradually, not suddenly or spasmodically. Mental disorders or delirium, practically insanity, may, however, sometimes develop rather suddenly in a patient having a latent organic or constitutional disease, or in one who has taken excessive amounts of narcotic drugs, or following trauma and shock. Insanity is sometimes so insidious in its origin and development that its first symptom or onset is overlooked, or, on the other hand, significant signs are unrecognized or disregarded, or the case concealed at home, on account of false pride or ignorance, until the patient becomes profoundly depressed or violent, or commits or attempts to commit some crime, such as infanticide, homicide, or perhaps suicide.

In the physical examination of a patient suffering from mental aberration, the same methods and general diagnostic principles should be applied as in any other diseased condition. The extent, however, of a physical examination and laboratory tests, and when they should be made, are matters to be determined by the physician. At the outset, get from reliable sources as complete personal and clinical history as practicable. Then approach the patient in a natural and tactful manner—and this is not easy for some physicians to do—and have him tell in his own way, if he will or can, his complaints, how he feels, what his thoughts are, his viewpoint about his illness and the cause of it, his feeling and attitude towards his family and associates. Observe and ascertain in what way the patient differs from his usual appearance and standard of feeling, thinking and acting, for on these changes de-

lends the diagnosis of a psychosis. Notice his manner and attitude, whether there is strained or inhibited activity, voluntary attention, and what is his general mental trend.

Perhaps the symptoms had appeared so slowly and in such mild form that little impression had been made upon associates, before a decided change had taken place in the patient, such as loss of interest in his work, pronounced depression, apprehension, a feeling of inadequacy, morbid fears, psychomotor retardation, confusion, suspiciousness, insomnia, restlessness, clouding of consciousness, pressure of activity, elation, excitement, hallucinations, delusions, lack of insight, etc. Along with or preceding the mental disturbances there are usually various physical symptoms, such as changed expression, gastro-intestinal troubles, headache, nervousness, genito-urinary disease, and sundry other somatic conditions.

There is often an interaction between endogenous causes, such as a bad heredity, and unstable or inadequate nervous system and exogenous causes, which may be either physical or mental. There may be, and frequently are, one or more of these physical conditions: infectious toxemia, exhaustive conditions, nephritis, cardiac disturbance, circulatory disorders, venereal diseases, and also mental anxiety, worry, business perplexities, stress, improper environment, unhappy domestic relations, lack of rest, sleep, or recreation, and bad physical and mental habits generally.

There are several general types of subnormal and abnormal mentality, a fair knowledge of which is helpful in arriving promptly at a conclusion as to the best method of treatment and care. First, those in whom there is congenital or early acquired mental deficiency, or arrested development. Second, those who in childhood appeared somewhat queer, shy, moody, different from other children, etc., who gradually showed indications of ill-balance, inability to adjust themselves to their environment, and finally yielded to some crisis or strain, and then the dominant degeneracy or inadequacy became manifest. Third, those who had been regarded as mentally sound, but whose mental upset resulted from physical disease or bodily disturbances, toxic conditions, stress, etc.

The first and second classes embrace, generally speaking, the mental deficients—all grades from the idiot to the moron—psychopaths, constitutional inferiors, dementia praecox, mental and moral delinquents, and paranoiacs, all of whom are incurable and need mainly custodial and protective care and training.

The third group embraces exhaustion and infection psychoses, acute confusional states, toxic and intoxication psychoses, and also manic-depressive and some traumatic cases may be included. A large proportion of these, if placed, in the early stages of the attack, under proper treatment and supervision, will either recover or improve sufficiently to resume profitable employment and their usual place in the community.

There are, of course, cases caused by the prolonged use of alcohol, ending in dementia, and those that owe their origin to terminal syphilitic processes. These have little or no chance for permanent improvement, but usually progress towards ultimate disintegration and death. There are also organic brain and senile cases for which little can be done other than kindly attention and correction of remediable physical conditions.

The therapeutic and general methods of treating psychoses vary, more or less, according to the character of the symptoms, the temperament and social position, personality and environment of the patient, etc. All physical symptoms and diseases should, of course, receive proper attention. If the mental symptoms are mild and of short duration, suitable treatment of the physical ailments, elimination by laxatives, diuretics and baths, rest, careful nursing, and a general building up process may soon restore a normal mental status. Such cases then often get entirely well if they are pleasantly diverted by various games, light, congenial employment, pleasure trips, changed environment, a stay at the seashore or in the mountains, or elsewhere in new surroundings. If, however, the symptoms are well-marked and acute, and treatment is to be attempted at home, the patient should usually be put to bed in a quiet comfortable room, away from disturbing conditions, and, whenever practicable to do so, put in care of a tactful and resourceful nurse or attendant. The presence of members of the family and visitors is frequently injurious to a mental case, a fact hard to impress. Auto-toxemic exhaustion and fatigue of the cerebral structures being responsible for the mental disorder in many of the acute cases,

the rational treatment is removal of morbific agents and the restoration of nutrition and normal physical conditions. Aim to restore as speedily as possible the normal functions of the body.

Endeavor therefore to keep the bowels in a soluble condition by means of fruit juices and appropriate laxatives. High enemata are frequently very efficacious, especially in fecal impactions. Water should be given at brief intervals. If the patient can not be induced to drink sufficient quantity, resort to high saline injections. Hydrotherapy, in the form of prolonged warm baths or packs, is invaluable in aiding elimination and producing mental quietude and sleep, especially in infective-toxic cases with psychomotor excitement.

Focal infection, whether in the brain, the oral cavity, the intestinal tract, or elsewhere, may have a causative relationship to the mental upset, consequently should, if possible, be removed. Much has been said and written lately about removal of tonsils, teeth, etc. Dental work is unquestionably of value in some mental and nervous cases. Irregular menstrual functions and diseases of the genito-urinary system constitute etiological factors in many cases, so should receive due consideration and treatment. Conservative surgery has an important place in psychiatric therapeutics.

Digestive disturbances are commonly among the annoying symptoms and should receive special attention. Taking of insufficient food, mal-assimilation, etc., profound emotional disturbances, toxemia, insomnia, etc., result in emaciation, exhaustion and collapse. Correct, therefore, existing digestive troubles and apply general dietetic principles. Unless there are contra-indications, feed the patient frequently, giving easily digested, nutritious, mixed diet. Forced feeding may be necessary, especially in cases profoundly depressed, delirious, in an exhaustive state, or having delusions of poisoning or persecution. If a suitable feeding cup fails, use carefully a soft rubber feeding tube.

Insomnia should be combated by warm baths or packs, comfortable, tranquilizing surroundings in connection with rest and feeding. If it becomes absolutely necessary to use hypnotic drugs, prescribe them for as brief a time as possible, as they usually do the patient more harm than good. Too often the attending physician virtually "saturates" the patient with bromides, chloral, morphine, and various other narcotic sedative and hypnotic drug combinations, very much to the hurt of the patient. If the doctor feels that he must use hypnotics, paraldehyde, trional, sulfonal, veronal, and luminal are as good as any, or probably among the best medical agents.

In extreme conditions, such as prolonged and obstinate insomnia, accompanied by acute excitement or agitated depression, hallucinosis, physical exhaustion and confusion, conditions sometimes seen in the puerperal state or following childbirth, trauma, alcoholism, etc., hyoscin or morphin, hypodermically, and chloral and hyoscyamus serve a temporary purpose. Normal salt solution and quinine per rectum and strychnia hypodermically are useful if the exhaustion accompanied by insomnia is profound. Never use mechanical restraints or force of any kind on an excited patient, except as the very last resort, as they irritate and often injure the patient, and make bad conditions worse. When the use of these things becomes necessary little time should be wasted in getting the patient to a suitable institution where he can receive rational treatment.

Under the force of morbid impulse or reaction to insane delusions, surprises and unpleasant and even tragic incidents, such as destruction of property, attacks on individuals, infanticide, homicide, suicide, arson, etc., may occur, in the course of an attack of insanity, especially in the acute or active stage. The personal vagaries of the insane are not susceptible to any known method of psychological analysis. The only safe course then to follow is proper safeguards and unremitting personal attention. Never forget that every so-called melancholic is a potential suicide, and every true paranoiac is potentially a criminal.

Comparatively few cases of acute insanity are amenable, except for a brief period, to satisfactory treatment in the average home. Through failure to appreciate the significance of important mental symptoms and abnormal behavior, and the physical condition, special hospital care and treatment, or proper medical advice are too often deferred so long that the patient does not get appropriate treatment and a fair chance for recovery. Sometimes an attending doctor fails to recognize that he is not qualified by training, experience, or tempera-

ment to deal with insanity cases. Frequently mild mental cases can be very successfully treated in a general hospital under some special arrangement.

The laws of Virginia leave no ground for withholding from an insane, or mentally disordered person, the advantages and protection afforded by our State hospitals. In order to get at the earliest possible moment treatment of acute violent cases, laws have been enacted by the Virginia Legislature providing for the immediate admission of such cases, designated as emergency cases, upon the certificate of two physicians (see Code, 1919, Section 1032-1035). Another advanced step taken by the Virginia Legislature is that of providing for voluntary admission of patients; that is, without formality or judicial procedure or publicity. This is for the benefit of cases having very mild mental disturbance, or in the incipient stages of a mental break-down (Code, 1919, Sections 1031, 1087, 1088).

Neither of these laws is open to the charge or suspicion that an individual's liberty is interfered with, or that designing persons may "railroad" one into an "asylum," for it is optional with the hospital directors and the superintendent whether such patients are received and kept in the institution; and, furthermore, the voluntary patient may leave the institution on ten days' notice: and within the same period of time a judicial order is required in emergency commitments, thereby safeguarding hasty action in sending persons, under the immediate effects of drugs or alcohol, or other persons temporarily upset by fever or other causes, but not really insane, to a State institution.

The suspicion in the minds of some people that sometimes persons are by collusion and for ulterior purposes sent to hospitals for the insane, and that there are others there who are not insane or demented is groundless. The facts belie such suspicion.

A means of prompt dealing with the insane that might well be considered in this State is that of a psychopathic hospital which should perhaps be attached to one of the medical schools. Such a department should consist of a small, special institution for the very earliest possible treatment of cases of brief mental disturbance, also for observation, study, and treatment of persons who are afflicted with mild mental disorder or with serious nervous disturbance who could not well be committed to a hospital for the insane, and, furthermore, for voluntary cases. It should be a clearance house, as it were. Such an institution would naturally be a center of special psychiatric research and study under an especially trained and qualified medical director. Such a department would be of immense benefit in medical education and clinical training of students. There should, of course, be a close and constant co-operation between such an institution and the State hospitals and colonies.

If we would keep our efforts in the interest of the insane in harmony with the definite, forward course psychiatry and mental hygiene generally are taking, due in large measure to the impetus given them during the war, we shall have to adopt a more constructive plan of action. A State-wide system of psychiatric social work, the establishment of clinics for the examination, diagnosis, and treatment of mental diseases and defects should be established and maintained by State appropriations. An after-care system should be a part of the scheme. With the desire to work in unison with the State hospital authorities in these matters, which are of such vital importance to the public health, the State Board of Health has already adopted resolutions, the purpose of which is to aid and co-operate with the authorities of the State institutions for the insane, epileptic and feeble-minded, in mapping out and carrying into effect a comprehensive mental hygiene program throughout the State.

PYELITIS.

By J. Bolling Jones, M. D., Petersburg, Va.

Any physician particularly interested in physical diagnosis readily appreciates how frequently inflammation of the pelvis of the kidney occurs. My excuse for writing this paper particularly is three-fold: First, as already stated, is the belief that this frequency is not sufficiently appreciated by the average clinician; second, the insidious or obscure manner in which pyelitis may present itself; and, third, if not recognized, what dire results can occur in our patient by errors both of omission and commission in treatment. I, personally, am guilty along one or the other of these lines,

and a good many times in consultation have seen the same error in the work of others.

Pyelitis may be only a simple process, or may be associated with grave structural changes in the kidney itself. It may precede, and is always a complicating influence when there is stone in the kidney. Often the symptoms and signs indicating pyelitis, properly interpreted, furnish the only guide to the detection of stone by other means.

In etiology, pyelitis is distinctly infectious. It may be primary or secondary. It may occur and be a complicating influence in the course of a general infection, such as typhoid fever. However, the offending organisms usually found are, in the order of frequency, colon bacillus, tubercle bacillus, and the strepto- and staphylococcus. Primarily, the colon bacillus may pass directly from the bowel to pelvis of kidney; hence, a constantly overloaded sigmoid is a predisposing factor. When secondary, the nidus of infection may be far remote, such as carious teeth, diseased tonsils, foci of tubercular infection, etc., the germs entering the blood stream and being carried by it. Stone in the kidney itself, and any influence causing stasis of the urinary outflow, such as stone in the urine or bladder, enlarged prostate, new growth, stricture, etc., are marked predisposing factors. Here the infection is an ascending one, either directly along the mucous membranes or the lymphatics. To my mind, one of the most potent predisposing influences is pregnancy. The growing uterus pressing upon the ureters causes more or less obstruction, secondary infection being consequent. Pyelitis is vastly more frequent in women. The practice of so many of us of making the routine examination of the urine in pregnancy by only the heat and nitric tests for the presence of albumen is absolutely fallacious. The use of the microscope is indispensable in discrimination. Often the albumen we find by the methods referred to is due entirely to pus infection and not to any evidence of change in kidney structure, especially in the absence of casts. Pyelitis is particularly prone to occur in early childhood; here also, more often in females than in males.

Since the disease is an infectious one, the symptoms may be only local, only constitutional, or both. It is striking how frequently only constitutional symptoms are present. This applies particularly to the disease in childhood and in pregnant women. Particularly is it true in childhood that we get no history from the mother of any disturbance along the urinary tract.

Constitutionally, the disease manifests itself usually by a chill, more or less temperature, some sweating, some gastric disturbance, rarely intestinal, with more or less depression, depending upon the virulence of the infection. In childhood, as in any infectious condition, the cold stage may be absent. The picture repeats itself at irregular, not regular, intervals,—sometimes more than once in twenty-four hours. Should local symptoms be present, they will be characterized by more or less frequent and painful urination, pain along one or both ureters, and in the region of one or both kidneys, as the case may be. One of the most significant points is the tendency to repetition of the above constitutional picture, at irregular intervals, in a patient otherwise apparently healthy.

The diagnosis can be arrived at by proper consideration of the history, physical examination, chemical and microscopic examination of the urine, and complete blood examination. In childhood, the clinical picture is too often ascribed to malaria or some gastric disturbance, while in adults, particularly if the right side is involved, the appendix or gall bladder is often thought involved and the one or the other may be operated upon unnecessarily. Mistakes will rarely be made if the possibility of infection in the kidney is borne in mind. In adults usually, while in children rarely, the general symptoms will be associated with local manifestations in themselves suggestive. As stated before, these will consist usually in evidence of irritation at some point along the urinary tract. On physical examination, pain and tenderness over one or both kidneys, along the ureters or in the region of the bladder will be found. It is especially well to bear in mind that trouble in the pelvis of kidney alone will especially produce pain and tenderness just within the anterior superior spine on either side, as the case may be. Pyelitis plus stone will frequently produce periodic attacks of epigastric pain simulating gallstone colic. I have seen such attacks occur apparently in connection with the taking of food. In fact, no gall bladder should be operated upon and no appendix removed without proper precaution being taken to rule out the possibility of kidney infection. Rarely are the tenderness and rigidity as marked in the region of the appendix as when this organ

is the seat of trouble. Tenderness and apparent rigidity over the gall bladder may be present, but without enlargement. Should the pain and tenderness be referred low down and the patient be a married woman, the pelvic organs should always be examined; in fact, under modern conditions it is sometimes wise to thus examine the unmarried, in order to keep the record straight.

The absence of a palpable spleen will rule against malaria, which is of especial value in children, where we so frequently have only the general evidence of infection. Particularly where the symptoms are more general than local, the blood findings will be of great value, just as under other circumstances a more or less increased total white cell count will speak for an infectious condition, rather than for malaria or any digestive disturbance. Again, if malaria is producing the general picture, the plasmodium should be found after careful investigation. It is unwise to ever give quinine until the blood analysis is made thorough, as malarial parasites will never show up as long as the system is in any degree under its influence. The white cell count is usually lower (10,000 to 12,000) in pyelitis than in acute appendicitis (15,000 to 25,000). The difference in gall bladder infection is usually not so great, but confusion more often occurs between kidney and appendix than between kidney and gall bladder. Again, infections in the kidney being more chronic or subacute than the other two, diminution in the red cells and lowered color index is sometimes noted. This latter fact would particularly be the case if the infection be a tubercular one. In this instance, also, there might be practically no increase in white cells unless the infection is a mixed one.

Finally, from a diagnostic standpoint, frequent and careful chemical and particularly microscopic findings in the urine are the guiding stars against error. Should one or both pelves be involved, the mixed urine will show more or less pus, either constantly or intermittently, at longer or shorter intervals. The microscope is essential to detect it. Fresh specimens should always be examined, and, if any question, several specimens at daily intervals should be studied. Confusion may arise otherwise, if there is any periodic interference with drainage from the kidney involved. This is often the case in pyelitis concomitant with stone in pelvis or ureter and in cases attending pregnancy. Another especial precaution is that in case of adult females, pregnant or non-pregnant, a catheterized specimen is the only absolutely reliable one. Pyuria from the pelvis of the kidney is usually acid in reaction, unless there is concomitant cystitis with bladder stasis. Its specific gravity will not vary from normal, unless the infection be tubercular. In this instance, it is usually lowered and intensely acid. It may or may not be cloudy in appearance, depending upon the amount of pus being discharged. Albumen will necessarily be present from the pus. Appearance of casts would indicate complicating nephritis. Occult blood would indicate either an intense infection or the presence of stone, new growth, or varicosity somewhere along the urinary tract. The presence of pyelitis does not necessarily affect the amount of urine. Frequency of urination may be marked, yet the amount as a rule is not much changed except in the tubercular variety.

Given either the general or local symptoms or both combined, the blood findings and the associated urinary changes, the diagnosis of pyelitis can be made in the large majority of instances. However, in a few cases, solely from the standpoint of diagnosis, it will be necessary to cystoscope the bladder and catheterize the ureters to make the picture complete. In a much larger number of cases, from the standpoint of treatment, it would be wise to exercise this procedure. Neglect along this line is too often apparent. Practitioners incapable of the procedure themselves often fail to grasp its value to their patients from a diagnostic standpoint and particularly from the standpoint of discriminative treatment.

The treatment of pyelitis will depend upon whether it be primary or secondary, complicated or uncomplicated. In primary or secondary uncomplicated cases, it practically matters not how the infection is carried, it will be wise to keep the alimentary canal as clean as possible. This procedure tends to remove one focus of infection and helps the general toxemia by elimination. At the same time measures can be adopted to benefit the infection in the kidney itself. These will consist particularly in the ingestion of large amounts of fluid, particularly water. Rarely does the temperature itself require any treatment, except possibly in childhood. The diet should be bland and unirritating. Rest in bed

should be enforced. The skin should be kept active. About the only drugs of any particular value are those setting free formaldehyde in the urine, such as formin or urotopin. From thirty to sixty grains daily of either should be taken, largely diluted. This dosage applies to adults; children in proportion. During their administration, evidence of any irritation in the kidney structure itself should be noted. If such occurs, the drug should be withdrawn. In cases of active nephritis complicating pyelitis, neither should be given. Here possibly methylene blue is the best drug, carefully administered. When it is apparent that the condition is secondary to some remote focus, such of course should be looked after in addition to the general treatment. As the disease manifests itself in childhood and usually in adults, the foregoing measures, if persisted in, will readily effect a cure.

In dealing with the complicated cases, the considerations and results of treatment are very different. When occurring during the course of pregnancy, unless the infection is too profound, the patient should, by general, antiseptic, supportive and eliminative treatment, be carried to, or as near, term as possible, in the interest of both mother and child. This can usually be accomplished. After delivery, usually, but not always, the evidence of pyelitis will disappear if general measures are persisted in. Since most of the complications of pyelitis are surgical in character, surgical treatment will be required in addition to general measures. Results will depend upon the gravity of the situation. It is essential, under such circumstances, to determine the relative condition and function of each kidney and its ureter. This can only be accomplished by the use of the cystoscope with ureteral catheterization, the X-ray, and the kidney function test. If it is thus determined that kidney or ureteral stone is present, it should be removed by appropriate surgery. If the other side is properly functionating, results are safe and satisfactory to both patient and surgeon. It is my impression that if we study carefully the cases of insidious irritation of the urinary tract that come to our offices, more instances of pyelitis, with or without stone, will be discovered than one would think. We are all too prone to prescribe a urinary sedative and let the patient go. My experience is that infections more often travel from above downward than the reverse, except possibly in old men with prostatic enlargement. If bladder stone, or tumor, or enlarged prostate be present, appropriate surgery should be instituted and at the same time general measures should be followed out to correct the secondary back pressure infection. Stricture of the ureter can be handled best by dilatation with ureteral catheters. In some instances, treatment of the pelvis itself in simple pyelitis, by injections of silver nitrate, will be of great service. In cases of tubercular infection, especially where the kidney structure is involved and the patient otherwise in good condition, nephrectomy is the operation of choice; likewise in pyonephrosis. Always when nephrectomy is contemplated, the function of the other side must be proven.

INTUBATION FOR LARYNGEAL DIPHTHERIA.

By E. L. McGill, M. D., Petersburg, Va.

A debt of lasting gratitude is due the late Dr. Joseph O'Dwyer, of New York. In 1880, Dr. O'Dwyer became interested in the study for relief of the stenosis in laryngeal diphtheria and in 1883 he gave to the world his technique and the perfected instruments as they are used to-day.

Although others have attempted to modify and improve on his tubes, it is unnecessary to mention any of them, as most of them have been discarded as useless and all of them of little use except in a few limited cases.

Intubation of the larynx, an operation devised by O'Dwyer, consists of the introduction of a tube into the larynx for the purpose of securing free respiration in the presence of obstruction in the larynx or upper part of the trachea.

The advantages over tracheotomy as given by Dr. Holt are:

(1) It is quicker, simpler and adds no danger to the original disease.
(2) There is no shock or hemorrhage.
(3) No anaesthetic is required.
(4) No fresh wound is made which may prove an avenue of infection.
(5) It gives an opportunity for a better expulsive cough which is of great advantage in dislodging false membrane and mucus.
(6) Usually, there are no objections on the part of the parent to overcome.
(7) The air is warmed as it normally is.

(8) No skilled after treatment is required.
(9) All who have had experience with the operation in infancy admit the great superiority of intubation over tracheotomy.
(10) The tube can be dispensed with sooner than the tracheal canula.
(11) If tracheotomy is subsequently required it may be done upon the tube as a guide.

Description of the Instruments as Given by Morrow.

The instruments consist of a set of seven tubes, an intubator or introducer, an extubator or extractor, a mouth gag, and a gauge indicating the size of the tube, according to the age of the patient.

The tubes are made of hard rubber lined with metal. The head of the tube is expanded and prolonged backward in form of a flange to prevent it from slipping through the vocal cords; below the head is a slightly constricted neck. The middle of the tube has a fusiform bulb to aid in keeping the tube in position, yet it is small enough to allow of ready expulsion.

In the anterior portion of the head is a perforation for the passage of a silk thread, the lower end is rounded off and oval and reaches to just above the bifurcation of the treachea.

Each tube is provided with an obturator which fits in the introducer. The introducer or intubator consists of a handle, in which fits the obturator. Over this is a sliding tube with a flexible end which can be pushed forward by a knob, by detaching the intubation tube from the obturator when the former is in proper position in the larynx.

The extractor or extubator is an instrument supplied with narrow jaws which fit into the lumen of the tube and when opened by pressure upon a lever engages the tube and allows its removal from the larynx.

What is more distressing than to be called to a case of laryngeal diphtheria in its alarming stage; a mother walking the floor with the little patient in her arms fighting for breath, its anxious face bathed in sweat, dyspnoea, restlessness, retraction of the epigastric and supra-clavicular spaces and evidence of cyanosis. How helpless one is to give relief!

When to intubate is often a puzzling question to the average physician and is often put off too long.

As Dr. Kerley states "It has been said to be indicated when there is pronounced recession of the supra-sternal and infra-sternal spaces, when, as a result of stenosis, air enters the bases of the lungs feebly, or not at all. It may safely be said that intubation is never done too early but is very apt to be done too late,—not too late in a great majority of cases to be of some service to the patient, but too late to be of the greatest possible good."

Kerley's rule is to intubate in laryngeal diphtheria when it is seen that the child is wasting vitality in his efforts to carry on respiration. It should not be postponed until he has become exhausted in the struggle for air.

The Operation.

Have everything necessary ready before attempting to introduce the tube. The patient should be wrapped in a sheet or thin blanket from neck to feet, arms by his sides. The sheet should be securely fastened with safety pins with no bunching of sheet or blanket over the chest, as this will interfere with the hand holding the intubator. The position of the patient is one of choice,—upright preferred by some, horizontal by others. If upright, the child is held in lap by an assistant with head against right shoulder and limbs between the knees of the assistant. The second assistant holds the head of the child straight to the front, slightly stretching the neck. The mouth gag is inserted in left side of patient's mouth and held by the assistant against the child's cheek.

The horizontal position is the one usually learned by the student and requires but one assistant. A folded towel is put between the patient's shoulders, throwing the head slightly backwards.

Having selected the proper tube for age and size of patient, pass the silk thread through the perforation in flange of tube, with the latter on the obturator, which is placed in the handle of the introducer and secured by a set screw. The introducer is grasped in the right hand with index finger around the hooks on under surface of the handle, the thumb against the knob or upper surface of handle. The silk thread with its ends tied together is wrapped around the little finger. The left index finger is passed into the child's mouth and the epiglottis hooked up. The introducer, with tube attached, is now passed along the radial side of the index finger, keeping the instrument in the middle (this is very important) and tube hugging the centre of the tongue. The handle of the instrument at

first is well down parallel with body of the child; when the end of tube reaches the epiglottis, the handle is sharply elevated, so that the tube is brought into position parallel with larynx. If the handle of the introducer is not properly elevated the tube will pass into the oesophagus which it is very apt to do at the next maneuver. The index finger is now moved to the posterior portion of the larynx resting on the arytenoid cartilages, to prevent the tube from entering the oesophagus. The tube is then gently pushed through the chink of the glottis and on into the larynx, guided by the finger of the operator. No force whatever should be used.

As soon as the tube is in proper position, the operator's forefinger is placed on the head of the tube holding it in place, while the button on top of the handle is pressed forward, thus disengaging the obturator from the tube. The intubator with the obturator attached is now removed and the tube is pushed well into the larynx by the forefinger. Not more than from five to ten seconds should be taken in introducing the tube for, while this is being done, respiration is being interfered with. If the tube cannot be properly inserted, the operation must be suspended and a second attempt made after allowing the child to recover its breath.

When it is certain the tube is in position and the patient breathes properly, the silk thread is cut and removed from the head of the tube, but never do this until you are sure the tube is in the proper position. In removing the thread, first see that it is not twisted. The index finger has to be put on the head of the tube when the thread is being removed. Some operators prefer to leave the thread in the head of the tube in case of emergency. If this is done, the thread is brought out at corner of child's mouth, passed around ear and fastened with adhesive plaster. The child's arms should then be restrained to prevent it from catching hold of the thread and pulling the tube out; personally I have never left the thread in the tube, for it is a source of worry and irritation to the child.

How to Tell When the Tube Is In Place.

There will be a hissing sound as the air rushes through the lumen of the tube, or a short rattle as the air passes through the mucus in the tube. There is vigorous coughing for a few minutes with expulsion of a quantity of mucus, and at times of bits of membrane. The cyanosis clears up and the child passes from a stage of restlessness to quiet, frequently falling to sleep in a few minutes when there has been much exhaustion. If still in doubt, pass finger into oesophagus and the tube will be felt in front of finger. If the tube should be placed in the oesophagus, as is often the case with beginners, there will be no relief of the dyspnoea or cyanosis, no cough, and the thread will seem to shorten as the tube passes down the oesophagus. In such cases, the tube is removed by pulling on the string and another attempt made to introduce the tube after waiting a sufficiently long time for the child to recover from the excitement. In some few instances, the tube may be occluded by crowding membrane ahead of it; then quickly remove tube and, if the membrane is not expelled from the larynx and cannot be extracted, and suffocation seems imminent, tracheotomy should be performed.

When to Remove the Tube.

The tube should be removed as soon as possible, that is, as soon as the patient can do without it, as the prolonged use may produce ulceration of the larynx. In cases where antitoxin has been used, the tube may be removed in from three to seven days, depending somewhat on the age of the patient, being left longer in the very young children; it has been my rule to remove it on the fourth day. If the tube becomes occluded at any time, it must be removed without delay, cleaned and reintroduced; when occlusion occurs, it frequently happens that the tube is coughed up. When the tube is to be permanently removed, the physician should remain a sufficiently long time to see that respiration does not become impeded, so as to necessitate reintroduction; this has occurred three times in my cases.

Technique of Extubation.

The patient is wrapped in sheet or blanket and placed in same position as for intubation. The mouth gag is inserted and the operator passes his left index finger into the child's mouth and over the epiglottis, hooking it up, and feels for head of tube. The extubator or extractor is held in the right hand with the jaws closed and passed into mouth along side of finger by the same maneuvers used when intubating, until its tip is felt by the finger on the head of the tube. It is then carefully passed into the lumen of the tube. By pressing the lever on top of the handle, the jaws of the instrument are separated and obtain a hold on

the tube so it may be removed. To do this, the tube is first lifted vertically, the handle of the instrument is then depressed and the tube is brought out by a reversal of the movements in intubation. In emergency, when the tube becomes occluded and no one is at hand familiar with intubation, it may be possible to remove it by enucleation, especially if the tube is a short one. This consists in placing the thumb of the right hand on the larynx beneath the end of the tube, while the patient's head is extended, and with a quick forward motion of the head at the same time exerting upward pressure on the larynx, the tube is expelled into the mouth.

After Treatment.

As regards the tube, there is no treatment. The original disease has to be treated. Intubation relieves only one danger from the patient, that of asphyxia from mechanical obstruction of the larynx. The child should not be allowed to lie on its face or held over the shoulder with face downward, for in either position a slight cough is sometimes enough to dislocate the tube. Nursing infants may continue at the breast; ordinarily they have but little difficulty in swallowing; older children often have considerable difficulty in swallowing liquids, which may be overcome, by the position suggested by Casselberry, of Chicago, of having the patient's head lower than his body. If there is still trouble in taking fluids, semi-solids may be tried. Feeding is always easier after the first day or two.

It is claimed by some that intubation is easier; however, this is not always so, as at times I have found it easy and then again very difficult. In the large medical centers one may become quite skillful, depending upon the number of cases occurring. In the small cities there is less opportunity for perfection. Extubation at times is quite as difficult as intubation, and sometimes more so.

In the present day of the free use of antitoxin, one does not see so many cases of laryngeal diphtheria reach the stage of operative interference, but it does occur often enough to justify more of the medical profession perfecting the technique of the operation and thereby saving the lives of some of these cases. Too often the physician is not consulted until the child with "so-called" croup is in extremis; then again, if called early, he fails to recognize the condition. He is told by the mother that the child has croup, prescribes the usual remedies, and lets it go at that. Let me here impress upon you the great importance of recognizing laryngeal diphtheria early. The prognosis in the late cases is always doubtful. In distinguishing between catarrhal croup and laryngeal diphtheria, the history of the case is of aid; the latter is more gradual in outset, the dyspnoea not spasmodic, but gradually increases. There are no remissions in laryngeal as in catarrhal, provided antitoxin has not been used. A few whiffs of chloroform will relieve the dyspnoea of catarrhal croup, but not of laryngeal. If there is severe, constant and increasing dyspnoea with aphonia, laryngeal diphtheria may be assumed. A culture should always be taken.

I recall one case I was asked to intubate, a boy of seven years, who had been treated two days for asthma by his first physician; the second one recognized the condition which was alarming when I saw him. On a number of occasions I have been called to cases by physicians, both in the city and country, and found the little patient with both cyanosis and dyspnoea marked, rapid weak pulse, anxious face and child fighting for air. The relief of such distressing symptoms is prompt, at times like magic. Two cases have died suddenly with the tube in the larynx, probably from heart failure, one in an infant, who was constantly held by an anxious mother in an upright position, the other a baby of two years who was allowed to sit up in his crib any time that he wished to. These cases, as in all diphtheria patients, should be kept flat on the back. Another case of sudden death was in a girl of eight or nine; this patient, about an hour after extraction of the tube, got out of bed and walked across the room to get one of her toys, during the absence of her mother, and collapsed on the floor.

Eleven cases is the largest number I have had for intubation in one year; one case was re-intubated three times, first on the third day after coughing up the tube and return of cyanosis and dyspnoea six hours later; the second time on the 14th day after extubation, and on the 21st day for third time after extubation. This child wore the tube for 28 days.

It sometimes happens that the tube is coughed up and swallowed; this has occurred twice in my cases. About four years ago I was summoned hurriedly to my office. On arriving, I found a little patient, his father and two physicians from Hopewell; I learned they had

taken the child first to a throat specialist for a tracheotomy, but the specialist declined to operate and sent the case to me. The boy was in a very serious condition; I feared he would die from asphyxia before I could get the instruments together and intubate. However, intubation was done with prompt relief and the child taken home in a short time. On the fourth day, extubation was done, but about four or five hours later I was called to the case and had to put the tube in again. Extubation was finally done on the seventh day.

No physician should undertake to intubate a living child without thorough practice on the cadaver. Without such experience, tracheotomy is much to be preferred, for the field of operation is then beneath the eye of the operator. Dangers from intubation in unskilled hands are, asphyxia from prolonged and awkward attempts, laceration of the soft parts with the extractor as well as the tube, and the making of false passages, generally through the ventricle of the larynx.

MANAGEMENT OF THE INFLUENZA AT "OLD HICKORY."

By George H. Reese, M. D., Petersburg, Va.
Ex-Chief Surgeon.

This mammoth war industry situated in a bend of the Cumberland River, near Nashville, Tenn., was a complete smokeless powder plant, designed to produce 900,000 pounds of finished powder the day. It employed at the outbreak of the influenza epidemic approximately 40,000 men. Some added idea may be had of this work when it is remembered that the Panama Canal force was but slightly larger; that it was the largest war industry in the United States; the largest powder plant in the world, and, in capacity, about twice the size of the Hopewell Works.

Here, as in other communities, the influenza epidemic broke out with but little premonition, yet this warning, short as it was, engendered fears impelling us quickly to take steps, that saved endless trouble and embarrassment.

The bulletin sent out by the Surgeon General had led us to believe that this scourge was a mild three day fever; and so we regarded it, until the first few suspects drifted in. Immediately it was apparent that any disease presenting the appalling prostration, high fever, with proneness to complications, was one that might create disaster in this congested community, through death or panic, unless the employees could be protected and reassured. This meant propaganda, adequate hospital facilities, adequate drug supply, an adequate number of doctors and nurses, together with all the other essentials of hospitalization.

A short conference with the Plant Manager placed at our disposal the Quartermaster, Safety, and Sanitary departments, and, in addition, a blanket order for anything else we needed. No limits were set, no estimates made. Every one went to work with orders, that there would be no let up until every sick man, woman, and child was housed and cared for.

The Quartermaster's task was to furnish buildings, bedding and food, which he did with promptness and ease.

The Sanitary department furnished the sanitary equipment of utensils, orderlies, and sterilization. It might be stated here that the hardest task connected with this epidemic work was maintaining a sufficient force of orderlies. They generally looked the situation over and fled.

To the Safety department was assigned the duty of canvassing the village with numerous mattress-covered trucks, and collecting all influenza cases not receiving medical attention and delivering them to the hospitals. Also it was in their province to keep in touch with the patients' relatives and to dispose of the remains and belongings in case of death.

This left to the Medical department the task of securing a sufficient number of doctors and nurses, providing sufficient and suitable drugs and other therapy, and establishing a smoothly working organization. Naturally, the administrative center was the main hospital. Here all new doctors and nurses reported and were immediately sent by the Assistant Chief Surgeon and Head Nurse to points where most needed. All drugs and other supplies were handled in the same way. This saved time, centralized information, and kept records. Each temporary hospital functioned independently with the exception of submitting daily reports, and drawing supplies and general information through the main hospital.

In three days' time we had collected over 1,000 cases into six temporary hospitals, sufficiently equipped to meet all essential requirements. This achievement broke the back of our troubles. From this time on it was only a matter of amplification, smoothing the rough spots,

and trying to check mortality. These three days and nights constitute a period that will ever be remembered by those who lived through them. Of a staff of twenty-nine physicians and twenty-five nurses, fully twenty per cent. of each became ill at the very outbreak of the epidemic. This compelled the others to almost constant duty for three days and nights, but after that time the influx of both doctors and nurses was well under way, and continued so until about seventy-five doctors and one hundred and twenty-five nurses were added to our staff, and shifts of reasonable length established.

We spoke above of fears engendered and steps taken. This had reference to the possibility of securing enough doctors, nurses and drugs to care properly for the sick among this horde of laborers, besides their women and children. One of our first acts was to call for all the physicians and nurses obtainable. In this way only did we meet the need. A few days' delay and other localities would have had them. We made our principal appeal through the Nashville Academy of Medicine and the Vanderbilt Medical Department and the manner in which they kept the doctors and nurses rolling out to the Plant was a fitting testimonial to their humanity, professional pride, and patriotism. They left no stone unturned, many even sending their assistants and nurses until others could be supplied. Through Capt. R. C. Derriveaux, of the U. S. Public Health Service, we secured ten men, and through Dr. Olin West, four from the State Health Department. The other doctors and nurses came from all over the South and Middle West.

Of the buildings provided for temporary hospitals, there were three main types; dormitories, community houses, and Y. M. C. A. buildings.

By a community house is meant a type consisting of six, six-room houses under one roof. These and the dormitories proved far superior to the larger buildings, although the latter, with their wider spaces, filled with neatly arranged double-decked steel cots, and perfect lighting and ventilation, seemed infinitely superior at first. However, a few days' use indicated unmistakably the superiority of the smaller building, with only one or two patients to the room. The mortality rate in the Y. M. C. A. was daily climbing; in the others it was pursuing an even course. Patients isolated did better in every way. The reason was not hard to find. A patient had no opportunity to sleep undisturbed in an auditorium filled with other frightened, dying victims. There were too many strange sounds, too many mysterious movements, too many gruesome endings, that could neither be quieted nor hidden. The result was that patients got little of what they needed most—rest—mental and physical rest. These buildings were emptied as quickly as possible.

In the community houses, in order to facilitate passage, hall-ways were cut through the center of each building, which made a hospital unit of thirty-six connected rooms. About 800 patients were kept in this manner throughout the epidemic. Here we had the smallest mortality.

A great deal was said during this epidemic, and perhaps advisedly said, about cross infection in crowded quarters; but we are persuaded that the main cause of death in crowded quarters, was lack of rest. To treat influenza in a ward, in the light of our experience, seems little less than criminal. For our part we will never again willingly be a party to such a procedure. But then we knew no better.

As to the exact number of cases occurring on the reservation, no one will ever know. The best guess we could make was 10,000 the first week. The pay-roll diminished to that extent and the pay-roll did not include the women and children. So whatever error might be found in taking a drop in the pay-roll as an indication of the number of cases, the influenza among the women and children seemingly, would make ample compensation.

The influenza continued with us until March. In all we handled 3,300 hospital cases.

Of Whites, Blacks, Mexicans and Indians all seemed equally susceptible. Out of a population of 55,000 to 60,000, we lost about 400 men, women and children, during the five months the influenza continued. This is an exceedingly low mortality rate compared with some cantonments and other congested communities. The small mortality we ascribe to several preventive measures instituted early, and rigidly enforced where possible. First; advising all against undue exposure. Second; stopping and urging to stop from work all those who were sick. Third; pulling off the job all found with subnormal temperature whether complaining or not. Fourth; cautioning everyone possible

to go to bed early, if taken ill, and stay there until advised by his physician to get up. We know of many fatalities following the disregard of this advice, which gives us the assurance that for every wilful man that so died, many others, by following it, survived.

Naturally, in such a conglomeration of different classes of different races, petty problems were constantly arising. For instance, the Mexicans, of whom there were several thousand domiciled in a separate village, as a rule flatly refused medical attention, until we hit upon the expediency of getting a few Sisters from St. Thomas Hospital to lead the way. Under their guidance an "entree" was established and all prejudice toward our doctors subsided.

Indian customs interfered with the work among this class of labor. They have to die erect, in order to die in good form; so when one became desperately ill his tribesmen stood him up, and thus hastened his demise. Protesting through interpreters did no good. It was a tribal custom. Fortunately for us, there were no great number on the reservation.

Among the negroes we had some annoying though not unexpected developments. A number of colored physicians had been secured to take charge of the colored population. Their Y. M. C. A. contained nearly 200 patients who were attended primarily by colored physicians. However, the question of "authority" bothered them to such an extent, we finally had to place a white physician in charge of each shift, to secure the needed harmony.

As for the actual benefit of medication in influenza, we are almost nihilists. At the very outbreak of this epidemic we practically cleaned Nashville of drugs thought to be good for influenza. In addition, we never failed to supply each individual physician promptly with his pet drugs. If any secured any marked benefit from the use of any of these drugs, with the exception of atropine in massive doses in pneumonia, they failed to report it.

We have given morphine in ½ gr. doses hypodermatically every four hours, and failed to check cough. Codeine, heroin and cough mixtures seemed equally futile and nauseating, in those cases we wished most to aid. Paregoric alone, of milder measures, seemed to have any extensive tolerance and benefit in allaying bronchial irritation.

We finally reduced our treatment almost to the purely hygienic:

1st. Absolute rest in bed.
2nd. Fresh mild air.
3rd. Water in abundance.
4th. Liquid diet.
5th. Symptomatic therapy if any therapy was necessary.

This may not appeal to those who saw less severe influenza under different conditions of life. We are anxious to learn from any source; but submit that we unlearned a lot from the above experience.

In conclusion, it might be stated that so far as the work of the plant was concerned, the influenza epidemic was but a disagreeable episode. The output of powder for October maintained its proportionate increase over that of preceding months. The construction work continued with but little loss of speed.

Of the regular medical work of the Plant, consisting of a main hospital, three first aid stations, and two employee examining officers, all working three shifts the day, only one first aid station was closed.

This record was made by untiring effort and undaunted zeal, by the unselfish devotion of volunteer workers, skilled and unskilled, by the generous assistance of Nashville physicians and those in the surrounding country, and by a loyal staff of doctors and nurses, who with no selfish thought held to their work by day and night, until adequate help arrived.

On doctor and six nurses made the supreme sacrifice in this contest with death; but they had counted the cost, accepted the challenge, and in a work of devotion found a sweeter life.

THE IMPORTANCE OF ROUTINE EXAMINATIONS OF THE NOSE, THROAT, AND EAR.

By Wm. C. Moomaw, M. D., Petersburg, Va.

To trained rhinologists, laryngologists and otologists the title of this paper will not appeal, but there might be found here a few hints of practical value to those whose work brings them within the portals of this branch of medicine in searching for etiological factors responsible for symptoms elicited in the daily round of examinations.

During the past twenty years the diagnosis of internal medicine has opened out to marvelous flower and fruitage, and in all sections, men in general medicine have shown keenness in working out their cases along progressive lines; but the same keenness has not been

shown in recognizing the relation of diseases of the nose, throat, and ear to the familiar symptom-groups met with in an average run of cases. In the larger towns where specialists are at hand, patients are referred for examination and treatment, but not to an extent commensurate with the prevalence and scope of these diseases. In the smaller towns and in the rural fields, the busy doctor, with large territory and long hours, and often lacking the conveniences and facilities for making even gross tests and examination of these organs, frequently overlooks and loses pertinent factors in the diagnosis.

It is almost a daily experience of men in this special line of medicine to see unreferred patients whose health hangs as a tattered garment, and who have been escorted through the vicarious paths of materia medica with continued discomfort and discouragement to themselves and to their escort. An examination of the nose, throat and ear would have been a revelation in most cases, and would have lead to the discovery and ultimate alleviation of the underlying cause. It would seem that diseases of these organs are overlooked because they are not suspected. Skillern, in a recent publication, states that "The postmortem observations from the various clinics would seem to show that Sinus diseases are much more frequent than formerly supposed. Examinations made in the autopsy room of all cases, regardless of the cause of death, give varying percentages in which the Sinuses were found involved and diseased". The figures given range from 22 to 47 per cent, and even higher in deaths resulting from influenza. There are reasons to believe these figures are too high, but the fact remains that there are many patients who are victims of an undiscovered or untreated lesion, or pathological process in the nose, throat or ear, which lowers their resistance and efficiency, and entails suffering and a slow decline to depths of despair.

More specifically it might be stated that headache, that enigma among symptoms, the cause of which is often sought for with agonizing zeal, is rooted, in the majority of cases, in morbid structure and physiology of the nose and throat. Hajek is quoted as saying "Many cases of Sinus disease with slight nasal symptoms go through their entire life with the diagnosis of chronic headache, taking all manner of cures . . . , without it ever occurring to anyone that the headache might be caused by structural disease in the immediate neighborhood"; that is, in the accessory sinuses of the nose. Nor is headache the only puzzle in the picture, for we may have dizziness, vertigo, mental imbalance such as mental hebetude, lapse of memory, irritability, depression, melancholia, inaccuracy of thought and judgment, and the like. Likewise, physical disturbances such as sneezing, dyspnoea, cough, hay fever, asthma, flatulence, nausea and sometimes vomiting, and constipation with its gloomy troup of concomitants, often have their sources in an empyema of the nasal sinuses or other conditions of the nose or throat. Rheumatism, a term in medical nomenclature that has become almost obsolete and meaningless, behind which our ignorance has long sought refuge, is merely a red light signal of toxic absorption, and can often be traced over a trail of pus to infected tonsils, or accessory sinusitis.

It is not the purpose or province of this paper to furnish a systematic and comprehensive symptomatology of these special organs, but to turn on enough light to stress the importance of making a routine examination of these fields for the same reasons that any other examination is made. Such routine examination is important, because:

(1) No examination of the patient, however thorough, is complete nor conclusive without it. For instance, let it be assumed that headache is the chief symptom complained of. The examination might reveal any one of the classical causes of headache: anemia, disorders of digestion, constipation, nephritis, pelvic lesions, ocular disturbances, neurasthenia. The headache referred to might be, or could be, due to any one or several of these states, but not until the nose and throat had been examined and certain diseases thereof eliminated could the diagnosis be complete and reassuring, or the treatment satisfactory.

(2) The prevalence of diseases of this area demand it. The frequent occurrence of nasal accessory sinus affections has already been referred to. Our case files show some interesting cases, several of long standing, who had been treated respectively for headache, bronchitis, asthma, rheumatism, nephritis, high blood-pressure, and neurasthenia. These cases showed, severally, blocked middle turbinates, maxillary sinus empyema, nasal polypi, infected tonsils. Most of these cases were re-

ferred, several were "incidentals." This citation is made not as a criticism of general medicine, but to emphasize the importance of bringing the nose, throat and ear to light in every examination, regardless of what the dominant etiological factor might appear to be. Deviated nasal septum, a condition easily discovered, and found in 75 per cent. of all cases, is not in every instance, but frequently, responsible for perverted nasal physiology, headache, and involvement of the sinuses.

Case: Unmarried woman, 24 years of age, neurotic temperament, history of menstrual disturbances; chief complaint, "Frequent headaches especially when catching cold." Examination showed high deviated septum with middle turbinate wedged between it and the lateral wall of nose. A submucous resection of the septum, with infraction of the turbinate, has given complete relief over a period of four months. Hypertrophic rhinitis exists in many unsuspected cases, and should be sought for because of its relation as an insidious causative factor to sinus diseases. Frequent attacks of the nasal mucosa lead to chronic hyperplasia, thereby blocking the ostia, interfering with drainage, perverting the function of the cilia by which the sinus mucosa normally rids itself of infectious agents, and lowering the resistance of these tissues.

The teeth and tonsils should be given thought at every general examination. This is not merely a verbose insertion. Case records are very illuminative as to the unsuspected relation of these structures, as causative etiological factors to blood changes, nephritis, ocular disturbances, physical and mental depression and what not. Aside from the more scientific ways of examining the tonsils, a great aid is to cause the patient to gag by sliding the tongue depressor over the base of the tongue. The constrictors of the pharynx thus present to view what otherwise might appear innocent tonsils. This gives a picture, also, of what happens during deglutition. The throat is narrowed, the tonsils squeezed toward the median line, and infectious material pressed from the lacuna into the food tract. The naso-pharynx, with particular reference to adenoids, and the eustachian tubes should be inspected, as from these, insidious ear involvement ensues. Pain in the ear, noises, or a sense of fulness, suggests that these structures are not normal. It would seem superfluous to say that the ears should be regularly examined, especially during attacks of influenza, scarlet fever and measles, nevertheless, under these conditions the drum membranes should be closely watched, and myringotomy performed early, if the exigences of the case demand it. The ear is often neglected or forgotten in these diseases, and we discover, with more or less chagrin, a purulent otitis media, or mastoid abscess, or as we have seen a double mastoid abscess with brain abscess complicating scarlet fever.

(3) An examination of these parts when making a general examination preserves the confidence and good will of the laity and strengthens the hands of both the general and special practioner. It is certainly much more gratifying to have a patient say, "Doctor Blank examined my throat (or nose, as the case might be) and advised me to have it treated," than to hear the question, "Well, why didn't my doctor tell me this before?"

It is not urged that this examination should be as thorough as that given in a well-equipped office of a man trained in this special field, and having the advantage of frequent observation of the various states thereof. It would not be necessary, for instance, to determine whether pus in the nose comes from the first or second series of the sinuses; but it is necessary to know that there is pus in the nose; and this can usually be determined by a simple examination of the nose, or of the naso-pharynx or pharynx. Again, it may not be necessary to determine whether pus exudes from the antero-inferior or the postero-superior quadrant of the drum membrane, or whether it originates in an infected eustachian tube, or the vault or the antrum, but it is not difficult to know that a perforation exists in the drum, and that pus is present. All of this is to say that there are many pathological states and processes of the nose, throat, and ear, many of them unsuspected, which could be discovered, if an inspection of these parts were included in the routine examination.

It might not be amiss to say a word about the instruments necessary to make this examination, and to offer several suggestions as to how to use them. The equipment need not be elaborate nor expensive. A good light is of first importance. An ordinary mazda bulb with a condenser is very useful, and can be used on a stand or bracket in the office, or with an extension cord for use at the bedside. Al-

ways place the light a little to the right and back of the patient, and on a level with the examiner's eye. If the patient be lying down, place the light about six inches from his right ear and slightly above and back of a straight line from ear to ear. If there be no electric current, a good flash-light will answer. A head mirror of standard make, preferably with a leather head-band, is the next prerequisite. Adjust the window of the mirror over the left eye. The mirror is not properly adjusted until the object to be inspected can be clearly seen with the left eye when the right eye is closed. This is important. A tongue depressor, a set, No. 1, No. 2, No. 3, throat mirrors, a Vienna nasal speculum, one set of ear specula, (four sizes) and several small cotton applicators complete the outfit. These are the essentials. Other equipment may be added if desired, such as a Coakley transilluminator, or other of the various electric instruments.

The method of making the examination may be had from any of the modern text-books on the technique of diagnosis. The important thing, and that is the plea of this appeal, is to make the examination.

5 South Adams Street.

SOME EXPERIENCES AND RECORDS OF A MUNICIPAL HEALTH DEPARTMENT IN AN EXTRA CANTONMENT ZONE—1917-1919.

By R. A. Martin, M. D., Petersburg, Va.
Health Officer of Petersburg.

When in the spring of 1917 the United States accepted the gage of battle that had been extended and became an active participant in the World War, it was natural that Petersburg, conscious of its many advantages, both as to location and otherwise, should aspire to be the training ground of the soldiery of the Old Dominion. It did not occur to those who had in charge the promotion of this ambition that a camp of the magnitude of Camp Lee would ever be established, but when, in the course of events, such a result was brought about, the attendant responsibilities were met by the citizens and the city government in a generous and patriotic spirit.

It would be well to understand that Petersburg, according to the census of 1910, a city of less than 25,000 inhabitants, had for more than two years past been housing the overflow from Hopewell, where the great gun cotton plant of the Du Ponts, with its more than 15,000 employees, was located. Hence, there already existed a marked congestion of the city's population. This now was greatly intensified by an army of laborers who flocked here from all points, seeking employment in the construction of Camp Lee, as well as at the powder city. To this company should be added the hosts of relatives and friends—particularly females—who accompanied or visited the soldiers that were being inducted into military service. It is, therefore, conservatively estimated that during the active period of the war the population of the city averaged 45,000 people, of whom probably 30,000 were of the white race. In view of this assumption, it is not without significance that we read on page 16, beginning with line 7, of the Mortality Statistics of the Census Bureau (1917) the following: "The rates (death) for the white population showing the greatest decrease in 1917 are those of Petersburg, Va., and Jeffersonville, Ind." This statement, of course, applies to all the cities within the registration area of the country. It is true that the rate given is 19., a rather high figure for a white population, but when it is remembered that this is based on an estimate of less than 15,000 white population, whereas there were at least 30,000 actual residents, the conclusion is unescapable that the year of the war's inception was signalized by a death rate among the whites of less than 9. It is expressly disavowed that contributing to this gratifying result was the existing, well organized and well functioning Health Department. This division of the city government was no better and no worse than the average Southern city of like character and population. The point, though, to be emphasized is that after the decision to locate Camp Lee here was made, no request suggested by representatives of the Federal Government, regardless of financial responsibility entailed, was refused, but, on the contrary, every appropriation asked for, either by surgeons or others engaged in the work of the extra cantonment zone, was readily acceded to, either by the city government or by patriotic civic organizations. This liberality on the part of the city not only enabled the Health Department to increase materially its personnel and broaden the scope of its work, but every other department of the city's administration was

stimulated to greater endeavor by the generosity of the Council.

Somewhere in the Book of Numbers, if my memory serves, it is recorded that a delegation was sent out from the desert to make the original "survey" of history and report back to the hosts of Israel still in the wilderness in transit to the land of Canaan flowing with milk and honey. It is true that the conclusion deduced from this report differed, one account maintaining that it was a land of eternal spring and pure delight, inhabited by a peaceful, pastoral people who could easily be dispossessed and their villages and pastures taken over. The other account was that it was a bleak, inhospitable clime on the far side of Jordan—their cities walled—the inhabitants thereof giants—sons of Anak, to whom the average Israelite was as a grasshopper. However, it is to be noted that the destiny of the hosts under Moses was decided upon the report of one delegation. But when the location of Camp Lee was under consideration, and, indeed, after the decision had been made, their name was legion. Among the first on the ground was the Privy Councilor from the central office, who came with the idea of accomplishing the impossible, that is, constructing and maintaining a satisfactory and sanitary system applied to surface closets—illustrious investigators of malaria searched vigorously every stream for the anopheles—trained experts on milk, food and water supply were kept busy in their investigations, and ever and always we had with us specialists in venereal diseases, who came to show how to eliminate or to reduce to a minimal existence the scourge which Calvin in Geneva—more of an autocrat than any we have today—had essayed and in vain. They came not as single spies, but in battalions, and it is a pleasure to record that nothing was ever seen of that mythical, dictatorial spirit that is popularly imagined to be the invariable accompaniment of a military uniform. On the contrary, the utmost and most cordial courtesy was extended, and the co-operation that existed between local officials and government representatives was never marred by a discordant note. To the active aid in the many phases of health work received from the government, as well as the attitude of the City Council in balking at no expense that would promote the welfare of its citizens and the visiting soldiers, the credit should be assigned for the city's emerging from an unprecedented period of stress and trial as well as it did. In particular, it should be remembered that the United States Public Health Service assumed the entire expense of establishing and maintaining until July 1, 1919, the venereal clinic. It may not be improper here to state that now under the local management this clinic has recently been rated by the government inspectors as first in point of efficiency of the cities of its class in this State. Further, the Public Health Service, after a course in the National Hygiene Laboratory given the bacteriologist, made possible at an early period the addition of the free Wassermann test to the routine examinations. It also purchased additional laboratory equipment and for a time furnished an assistant, and in many other ways did all in its power to aid the local office. It should be noted here that throughout the war period all laboratory work within the extra cantonment zone (or five-mile zone) was done by the city's laboratory.

The following statistics are presented with the explanation that they are based on an estimated average population for the three years past of 37,000—22,000 whites, 15,000 colored. It has been before stated that during the active period of the war the average population numbered at least 45,000, and it should be remembered that the official United States census reports are based on a population of less than 25,000. It is believed that the rates based by the local Health Department are much nearer accurate than the average government reports.

Deaths

	White	Colored	Non Residents Included in Total	Total
1917	280	415	82	695
1918	399	453	112	852
1919	233	358	86	591

The annual death rate for 1917 was 18.78; for 1918, the year of the great influenza epidemic, 23.00; for 1919, it was 15.97.

Birth Reports.

	White	Colored	Total
1917	513	404	917
1918	562	405	967
1919	525	392	917

It will be observed that the number of births exceeded the number of deaths even in the year of the influenza epidemic, but what is more interesting is that in 1919 the number of births among the white population consider-

ably more than doubled the number of deaths. This, however, is not due to an increase in the number of births, as the preceding year showed a higher birth rate. But the number of deaths among the whites showed a remarkable reduction (1918, 399 deaths; 1919, 233 deaths).

Tuberculosis.

This city has always had a high death rate from tuberculosis, but the record of the past three years (though, of course, this time is very short) would seem to indicate that some improvement is being made, the deaths for the period from all forms of this disease numbering, respectively, 78 in 1917, 70 in 1918, 60 in 1919.

The nurse, who for several years had been engaged by the King's Daughters, at the beginning of the war, volunteered her services to the Health Department and was assigned supervision of tuberculosis, in addition to the other work in which she was engaged. With the greatest zeal, industry and intelligence, she entered into the performance of her duties. Subsequently, the City Council made a special appropriation for the care and treatment of indigent tubercular cases. This sum was supplemented from other sources, and has been chiefly expended in the payment or part payment of fees for local patients at the State Sanitorium. Cases of tuberculosis from Petersburg are now being sustained from this fund at all the State institutions. While the sum at our disposal is still inadequate to meet the demand, it is believed that by this method the establishment of a local hospital for this disease will not be necessary and results obtained will be just as satisfactory. Patients that we are not able to send to the State Hospital have a strict supervision kept over them in their homes—sputum cups are supplied, disinfectants furnished, printed instructions given, etc., and the specially needy ones furnished with milk and eggs and other suitable food.

Typhoid Fever.

During the three-year period, ending January 1, 1920, there were eighteen deaths from typhoid fever, only four of which occurred in 1919. Six of these cases were not of local origin, and in four more the diagnoses were not confirmed by laboratory findings. The case incidence of typhoid shows a steady decline—63 cases being reported in 1917, 44 in 1918, and 27 in 1919. It will be understood that this record includes all patients brought from surrounding territory. During the three years approximately 800 persons received anti-typhoid vaccine at the office of the Board of Health free of charge. It is to be regretted that this reliable, protective measure cannot be more generally employed.

Some Other Communicable Diseases.

Notwithstanding the crowded condition of the city, with strangers from all parts of the world, it is gratifying to note that the amount of smallpox was insignificant. Both in 1917 and in 1918 two cases each were reported, in every instance, but one, the patient being a non-resident. In 1919 no case of this disease occurred.

Epidemic meningitis made its first recognized appearance here in December, 1917, and two other cases were reported, a third case occurring in January, 1918. Seven more patients with that disease were discovered before June 1st of that year, but not in a single instance was any connection between any of the cases established. Many carriers of the disease were found, who were isolated until proven free. The mortality was high, six of the ten cases dying. In every instance Flexner's serum was used promptly.

The early winter of 1918 was characterized by the decided outbreak of measles and German measles. Diphtheria was never excessively prevalent, except in the summer and fall of 1919, and while there were 34 cases of scarlet fever during the three-year period, there was at no time any exceptional outbreak. The number of deaths from these cases were measles 2, diphtheria 7, scarlet fever none.

Influenza.

On September 19, 1918, a letter was received from the medical officer at Camp Lee, stating that a communicable form of "cold" was prevalent at the camp, and inquiring if anything of the sort had been observed in Petersburg. From the tone of this letter, as I recall it, no great amount of significance was attached to the existence of the disease at that time, and I believe that it was stated that no death had then occurred. Local physicians, with whom I discussed the matter, expressed the opinion that summer colds or la grippe were existing to an unprecedented degree, but the general idea was that the malady was not of a very

serious nature. In fact, it was not until October 1st that any death from the so-called Spanish influenza was reported. With a rapidity that was almost lightning-like, the disease spread and in a very great many cases assumed a most malignant type. In the month of October alone 144 deaths were assigned to this cause—16 occurred in November and 30 in December, a total of 190 for the three months. To combat the epidemic that had so suddenly come on us, sanitary measures that had been adopted in other parts of the country were promptly enforced, and probably with just as little good accomplished. The churches, schools, theaters, barber shops, etc., were closed, restricted intercourse urged and personal hygiene emphasized. In spite of every effort, the epidemic, it is believed, ran its course practically uninfluenced. A systematic, detailed reporting of cases was out of the question at that time, since the medical faculty was reduced by a number of men away in the government service, and those who remained were far too busy to be required to give their time to filling the usual notification cards. However, by use of the telephone the Health Office obtained from every practitioner the number of new cases seen daily, and, as nearly as can be estimated from this method there were at least 15,000 cases of influenza in Petersburg between September 15, 1918, and January 1, 1919. Conditions demanded the establishment of an emergency hospital, and the new High School building was used for this purpose. Physicians from Camp Lee assisted in the operation of this hospital, and the nurses attached in any way to the Health Department were detailed for service there. The men and women of the city in large numbers volunteered for duty and were of inestimable value. Many of the most desperate cases, many who were moribund, were admitted, and the mortality rate of those who received hospital treatment was considerably higher than from the city at large.

Venereal Diseases.

The experience of the past twelve months has convinced me that venereal diseases can be rightly regarded as the most pressing problem of preventive medicine that confronts us today, this notwithstanding the fact that syphilis, the greatest of them all, is not only curable but preventable by application of the knowledge we possess. Up to a very few years ago, as it was universally known, no effort had been made to secure registration of these diseases, without which progress in their control is impossible. For the years 1917 and 1918 the clinic conducted in the city was entirely under the management of the United States Public Health Service representatives, and the records of these years are not available to me, but for the past twelve months the conduct of this clinic has been the responsibility of the local Health Department. In that time there have been entered for treatment over 500 cases of these diseases, practically new infections. Private practitioners have also reported more than 200. It is not contended that this number, 700, fairly represents the aggregate number here, indeed, it is not believed to be 50 per cent., for the obstacles in the way of obtaining reports are obvious and great. Still a start has been made, and with a considerable number of foci of infection neutralized, improvement can be anticipated. During the active period of the war, at a cost of over $5,000, isolation dormitories for women were established, with a capacity of over 60 patients. These buildings were located on the grounds of the smallpox hospital, which latter building was conducted as nurses' quarters, executive offices and treatment rooms. At no time were there more than fifteen inmates, and after operating five months, the hospital was closed, and recourse again had to the city jail as a place of quarantine. The cost of maintenance had proven far greater than expected, and the good accomplished was not at all commensurate with the financial outlay. The need for hospital facilities in the treatment of venereal patients is urgent, but it may be questioned if the best results could be obtained if reliance is placed for their establishment upon the various cities and towns of the State. It is not improbable that diseases of this class are more dangerous to the safety of the State than are tuberculosis and insanity combined, and it appears to me that institutions equally as well equipped for handling them should be established and maintained by the State, as are those now provided for the insane and tubercular. It is particularly manifest that were the minimum program of the United States Public Health Service adopted by each community in its fight against these diseases, it would be impossible to secure an adequate

trained personnel, and that the cost would be prohibitive. Analysis of all the many conditions involved inevitably leads to the conclusion that the hospitalization of venereal cases should be handled by the State rather than by local funds.

Clinical Reports.

EPIDEMIC ENCEPHALITIS, REPORT OF TWO CASES.

By GERALD A. EZEKIEL, M. D., Richmond, Va.

Case I.—A white female, age 40, was first seen on the 16th of April. She stated she had been taken ill exactly three weeks ago. For a few hours she had double vision, and since then has been sleepy and sleeping a greater part of the time. She complains of poor vision for the last three weeks; has lost about twenty pounds and has been constipated.

Her mother and one sister died of cancer of the uterus. She had typhoid fever nine years ago and "flu" four months ago. There are three sons living and well. She has had six miscarriages since the birth of the last son. Her menses are regular now. She denies history of any luetic infection.

Physical Examination.—The patient is a woman of medium build with dull apathetic expression. She has ptosis of the eyelids, the left more marked than the right, and inability to raise the left lid as high as the right. She cannot wrinkle the forehead as much on the left side as she does on the right. When she smiles, the folds about the mouth are not as deep on the left side as on the right. There is a slight inequality of the pupils. The left pupil is the smaller and shows a slight flattening at the upper margin. No change is noted in the fundus, except slight pallor of the disk. No other cranial nerves are involved.

The thyroid gland is somewhat enlarged. No tremor of the hands is present. All tendon reflexes are present, though somewhat sluggish. Abdominal skin reflexes are entirely absent. The heart and lungs are negative. There are old scars on the lips of uterus. The temperature ranges from 99.6° F. to 100.6° F; respirations from 18 to 20; pulse 78 to 84. Blood pressure: systolic 105, diastolic 80.

Blood Wassermann is negative. White blood count: 7750 on the 21st, and 8400 leucocytes on the 23d. Differential count: polymorphonuclear leucocytes 51, lymphocytes 49 per cent. Urine examinations on the 18th and 20th were negative. On the 23d a heavy trace of albumen and a few hyaline casts were found. The spinal fluid was cloudy and contained blood; Wassermann on the spinal fluid was negative. All cultures of spinal fluid were negative; no organisms were found by direct smear.

Case II.—A white male, aged 25, was first seen in consultation with Dr. Sycle on the 19th of April, and the following history obtained. March 3d the patient had an attack of kidney colic. This condition responded rapidly to treatment. The patient felt absolutely well between March 6th and April 16th. On the morning of the 16th of April, as he started downstairs, he became very dizzy and had double vision, which persisted for two days.

Physical Examination.—The patient is a man of good build. He is in a state of mild delirium with almost continuous picking at the bed clothes. At times he attempts to get up to attend to his business. He can be aroused and carries on an intelligent conversation. There is no impairment of the higher centers of the brain. Ptosis of both eyelids is present, the right more marked than the left. He cannot wrinkle the forehead on the right side; and does not fill the outer canthus of the eye. The fundus is negative. There is a flattening of the face, lack of expression and loss of power in the muscles of the right side of face. There is no other involvement of cranial nerves.

The tongue is heavily coated; the breath is similar to that of a typhoid case. The heart and lungs are negative. Abdominal skin reflexes are absent; tendon reflexes are present in the upper extremities, absent in the lower extremities.

Temperature ranges from 99.6° F. to 100.6° F.; pulse is about 84; respirations around 24;

* Read at a meeting of the Richmond Academy of Medicine and Surgery, April 27, 1920.

blood pressure: systolic 158, diastolic 105. Urine examination is negative. White blood count is 8700; differential count: polymorphonuclear leucocytes 78, large mononuclears 8, lymphocytes 12, basophiles ½ and eosinophiles 1½ per cent. Blood culture is negative, macroscopic Widal and blood Wassermann are negative. The spinal fluid was bloody; the Wassermann on spinal fluid negative. Smear examinations of fluid and cultures are negative.

These two cases correspond quite typically to the condition described as epidemic or lethargic encephalitis. The definite time of onset, condition of euphoria, involvement of cranial nerves, no impairment of higher centers, Parkinsonian expression, and diplopia during first days of disease, are the most characteristic symptoms. The abdominal twitching recently described by Oriely was absent in both cases.

Discussion.

Dr. W. B. Blanton said that Barker, of Johns Hopkins, states that the blood in the spinal fluid of these cases is due to hemorrhage; but in the cases reported, Dr. Blanton thinks it was due to faulty technic. The disease is closely allied to poliomyelitis. Perivascular, round-cell infiltration is common to both; the symptoms are alike in many cases, and it is often a question as to which disease is present.

Dr. Virginius Harrison reported the case of a school-teacher who had had influenza in February. She returned from school one day, with ptosis, double vision, twitching and rigidity; later, somnolence ensued. She remained in bed for four weeks; and after getting up, it was found that there was one-sided paresis and flattening out of one cheek.

Dr. J. A. Hodges remarked that in the presence of an epidemic we are apt to overlook the presence of diseases that may simulate that then prevalent. He recalled two cases of dementia praecox which were at first diagnosed as somnolent encephalitis.

Dr. C. C. Coleman, referring to the case reported at length by him at a recent meeting of the Academy, in which the patient, an ex-soldier, had two pieces of projectile retained in the brain, said that he was more inclined to believe the diagnosis of lethargic encephalitis made at the time to be correct.

These cases must necessarily present great difficulties in diagnosis due to the wide distribution of the pathology. The type of disease will, therefore, vary with the preponderance and distribution of the lesions in the brain. So variable is the type of the disease that Tilney and Riley have reported nine different types, with case reports to justify their classifications.

In one of the cases reported by Dr. Ezekiel the seventh-nerve paralysis is of interest because of its peripheral type. The case of Dr. Ezekiel is reported as being unable to elevate the brow on the left side, which at once rules out a cerebral origin of the paralysis.

Dr. Coleman hopes that the members of the Academy who may have patients dying of lethargic encephalitis will make every effort to secure postmortems because the study of pathologic lesions of encephalitis will contribute greatly to the solution of the problems of cerebral physiology and may throw considerable light upon the cause of paralysis agitans. Paralysis agitans is simply mentioned as one of the diseases which may be cleared up by autopsy studies of lethargic encephalitis.

Dr. Ezekiel, closing the discussion, said that the disease is considered to be of hemorrhagic type, and he does not think that the presence of blood in the spinal fluid was due to faulty technique as suggested by Dr. Blanton; in fact, the pathologist, who examined the specimen, said it looked as if blood were mixed with the fluid. He drew more of the fluid than usual to see if there would be any influence on the case. A part came away clear, but later it became bloody; and headache followed the withdrawal. In these cases, it is the belief that stimuli fail to reach the centers. It is difficult to explain the raising of the brow, the presence of reflexes in the upper extremities, and their absence in the lower extremities, unless involvement varies in different cases. Treatment consists of withdrawal of the spinal fluid and symptomatic therapy.

Proceedings of Societies

Virginia State Board of Medical Examiners.

The last meeting of the Board to examine applicants to practice medicine in this State was held in Richmond, June 22-25, inclusive. We give below an alphabetical list of those who were granted certificates to practice in Virginia:

Ballard, J. W.	Beechwood, W. Va.
Baxter, O. D.	Raleigh, N. C.
Beecroft, M. B.	Newport News, Va.
Bell, J. O.	Wilmington, Va.
Boaz, E. D.	Pittsburgh, Pa.
Campbell, G. C.	West Chester, Pa.
Cannon, W. B.	Richmond, Va.
Clark, H. E.	Winchester, Va.
Collins, H. G.	Meyersdale, Pa.
Colonna, P. C.	Richmond, Va.
Correll, S. B.	Peoria, Ill.
Crawley, J. R.	Crewe, Va.
Curtis, W. C.	Brook Hill, Va.
Dillard, P. G	Lynchburg, Va.
Downing, B. C.	Williamsburg, Va.
Dreifus, P. W.	Quantico, Va.
Eades, J. B.	Roanoke, Va.
Eames, M. H.	Lanexa, Va.
Edmonds, J. F.	Richmond, Va.
Fowlkes, R. W.	Danville, Va.
Green, W. T.	Portsmouth, Va.
Hartley, G. S.	Clifton Forge, Va.
Holland, G. G.	Richmond, Va.
Howell, F. M.	Coleman Falls, Va.
Hurdle, S. H.	Wilmington, Del.
Hurt, I. H.	Philadelphia, Pa.
Huston, H. R.	Dayton, Ohio
Klein, H. W.	Richmond, Va.
Klotz, W. C.	Charlottesville, Va.
Krepps, R. M.	Washington, D. C.
Laird, J. P.	Philadelphia, Pa.
Leech, F. McC.	Murat, Va.
Matthews, Robert	Suffolk, Va.

Michael, C. A. ..... Chester, Pa.
Mitchell, E. G. ..... Washington, D. C.
Mitchell, Howard L. ..... Callands, Va.
Moore, A. H. ..... Clover, Va.
Moorman, Carleton ..... Moneta, Va.
McCoy, H. ..... Charlottesville, Va.
McCutchan, Frank ..... Catawba, Va.
McGuire, H. H. ..... Richmond, Va.
Nicholson, B. B. ..... Charlottesville, Va.
Nixon, S. H. ..... Christiansburg, Va.
Northington, P. O. ..... Boston, Mass.
Oast, T. E. ..... Portsmouth, Va.
Oates, W. C. ..... Richmond, Va.
Oppenheimer, W. T. ..... Richmond, Va.
Ownbey, A. D. ..... Newport News, Va.
Pleadwell, D. L. ..... New York City.
Potter, W. T. ..... Norfolk, Va.
Preston, H. G. ..... Charlottesville, Va.
Reynolds, C. J. ..... Charlottesville, Va.
Riggin, I. C. ..... Windsor, Va.
Rowan, H. M. ..... Youngstown, Ohio
Ryland, J. M. G. ..... Richmond, Va.
Scruggs, R. ..... Danville, Va.
Shawver, J. W. ..... Burkes Garden, Va.
Smart, J. A. ..... Herndon, Va.
Smith, H. T. ..... Independence, Va.
Steinmetz, I. D. ..... New York City
Thomas, J. G. ..... Adamstown, Md.
Walcott, W. H. ..... Clinchburg, Va.
Warinner, A. S. ..... Richmond, Va.
West, W. C. ..... Vesta, Va.
Wills, D. C. ..... Arrington, Va.
Wilson, N. G. ..... Summerfield, N. C.
Wingfield, R. S. ..... Philadelphia, Pa.
Wright, J. L. ..... University of Va.
Zerbee, J. B. ..... Fairfax, Va.

Total number of applicants taking examination.. 49
Total number of applicants passed..... 46
Total number of applicants failed..... 3
Total number licensed through reciprocity and pro forma 23

Included in the above—osteopaths..... 2
Included in the above—homeopaths..... 3

Applied from Medical College of Virginia..... 22
Applied from University of Virginia..... 11

Total number of applicants licensed..... 69

QUESTIONS.

Anatomy and Histology

W. W. Chaffin, Examiner, Pulaski, Va.

1. Describe the Antrum of Highmore or Maxillary Sinus.
2. Describe the upper extremity of the Ulna.
3. Describe the lower extremity of the Radius.
4. Name the muscles which connect the upper extremity, (a) to the vertebral column, (b) to the anterior and lateral thoracic wall.
5. Describe the Inferior, (or deep) Epigastric artery, with what does it anastomose above the Umbilicus?
6. What veins coming together make the External Jugular?
7. Describe the Trachea and give its relations.
8. Describe the prostate gland.
9. Describe the Gall Bladder and give its relations.
10. Give Histology of the Thyroid Gland.

Surgery and Gynecology.

P. W. Boyd, Examiner, Winchester, Va.

Surgery.

1. Give clinical history and diagnosis of acute osteomyelitis.
2. What are the characteristics of the primary sore of syphilis?
3. Describe the radical operation for oblique inguinal hernia.
4. Name the motor areas grouped about the fissure of Rolando.
5. What are the symptoms of hydrocele?
6. From what do all tumors originate?
7. Name the chief factors to be borne in mind in blood transfusions.
8. Give symptoms of phlegmonous erysipelas.

Gynecology.

9. Define pruritus vulvae. What is the etiology?
10. What are the complications and results of laceration of the cervix?

Materia Medica, Therapeutics and Toxicology.

H. U. Stephenson, Examiner, Toano, Va.

1. What is meaning of Antagonists and Incompatibles in Drugs? Give example.
2. What are Diuretics? Name Four of the most active and give the Physiological action of each.
3. Give Dose of Tincture of Strophanthus—its use and Physiological action.
4. Give agents used in reducing local inflammation.
5. What are Emetics? Name Four Gastric and Four Systemic Emetics.
6. Name Four Expectorants and give the Physiological action of each.
7. Name the various methods by which medicines are introduced into the human organism.
8. Give the best method and agents to promote Constructive Metamorphosis.
9. Name Four Irritant and Four Neurotic Poisons and give the Symptoms of each.
10. Give the best method and treatment for Auto-Intoxication in Obstinate Constipation.

Medical Jurisprudence, Hygiene and Preventive Medicine.

P. St. L. Moncure, Examiner, Norfolk, Va.

1. What Medico-legal questions would arise in the examination of blood stains?
2. Differentiate between wounds inflicted before and after death.
3. On what points of a skeleton can you determine the probable age and sex?
4. Name three important things ventilation should accomplish.
5. Define Fumigation and Disinfection. Can Fumigation take the place of Disinfection, and why?
6. What are nature's two most potent disinfecting agents?
7. How does air act as a carrier of disease? How may air be purified?
8. What means should be taken in a recent case of syphilis to prevent its spread?
9. Name two parasitic diseases due to the ingestion of infected meat or fish.
10. How would you prevent the spread of tuberculosis?

Pathology and Bacteriology.

Sam W. Mathis, Examiner, Warrenton, Va.

Pathology.

1. Define thrombosis, embolism, and infarction.

Name organs in which infarction most frequently occurs.
2. Explain metabolism of Diabetes.
3. Differentiate between Carcinoma and Sarcoma.
4. Give the pathology of Arteritis and arteriosclerosis.
5. Define (a) Necrosis, (b) Hyperemia, (c) Edema.

BACTERIOLOGY.

1. How would you determine by bacteriological method, if a specimen of drinking water was pure?
2. What is a parasite? What is a saphrophyte?
3. Define a toxin, and an antitoxin. Explain the theory of disease and the treatment by antitoxin.
4. Describe the specific organism of tetanus and state its peculiar culture characteristics.
5. Differentiate between the pneumococcus and Pfeiffer's baccillus of influenza.

THEORY AND PRACTICE OF MEDICINE.

J. H. AYRES, Examiner, Accomac, Va.

1. Give diagnosis and treatment of Syphilitic Iritis.
(b) At what stage of the disease does it most commonly manifest itself?
(c) What essential in treatment should never be lost sight of in all forms of Iritis?
2. Discuss the etiology and give leading complications in acute Articular Rheumatism.
3. Give differential diagnosis, prognosis and treatment of Epilepsy.
4. Define: Chorea, Tachycardia, Angina Pectoris, Aneurysm and Anorexia.
5. Give symptoms and treatment of Tape Worm.
6. Give physical signs and symptoms by which you would suspect Tuberculosis of the lungs in a young person before the cough became an annoying feature.
(b) Give your management of an advanced case in patient's home, and measures you would employ to prevent its spread to other members of the household.
7. In case of general Dropsy, name principal organs you would expect to find at fault.
8. Give diagnosis and prognosis of progressive Pernicious Anemia.
9 Give treatment of Heat Stroke with high temperature.
10. Give differential diagnosis between Tetanus, Strychnin poisoning and Hydrophobia.

CHEMISTRY AND PHYSIOLOGY.

I. C. HARRISON. Examiner, Danville, Va.

1. Give the distribution and function of the Pneumogastric nerve.
2. Give composition and uses of carbohydrates.
3. What are the functions of the Spleen?
4. From what three sources are the digestive fluids in small intestine derived?
5. What are the functions of the capillaries (1) In the lungs? (2) In the kidney?
6. Give names of $HgCl_2$, As_2O_3, HNo_3, H_2Co_3, NaHO:
7. Define Alkali, Salt, Valency, Compound, Alcohol, Reaction.
8. What is a chemical and what a physiological Antidote? Illustrate.
9. What is the difference between Venous and Arterial blood?
10. Give the clinical significance of albuminuria.

Amelia County Medical Society.

At a recent meeting of the Amelia County Medical Society, Dr. James L. Hamner, recently returned from medical service in the army, was elected a member. Officers elected at this meeting are: President, Dr. P. T. Southall; vice-president, Dr. Geo. A. Arhart; secretary-treasurer, Dr. Robert J. Styers. All of the officers live at Amelia Court House.

Public Health

IN THE TUBERCULOSIS FIELD.

TUBERCULOSIS THESES.

"Articles of faith" is the designation applied by Lawrason Brown to tuberculosis theses,—diagnostic, prognostic and therapeutic,—which he has used as the summary of a course of lectures and which have been reprinted from the American Review of Tuberculosis. Here are a few:

DIAGNOSTIC THESES.

1. An appearance of ruddy health does not exclude tuberculosis.

2. In any patient with constitutional symptoms, no matter of what he complains, the possibility of tuberculosis must be kept constantly in mind.

3. Prolonged and intimate exposure at any time of life, but especially in childhood, and in home or workshop or office, is vastly more important in diagnosis than "unassociated" or "non-contact" heredity.

4. The history or presence of certain complications, as fistula-in-ano, pleurisy, adenitis, a discharging ear coming on painlessly, are all strongly suggestive of tuberculosis.

5. A diagnosis, tentative at least, must be made whenever an individual spits a dram or more of blood that cannot be proved to be due to other causes (e. g., mitral stenosis).

6. Your friends, your patients, your family, are as prone to contract and develop tuberculosis as hundreds of others.

7. Symptoms are a better and more accurate guide to activity than are physical signs.

8. Failure to interpret rightly the significance of symptoms, to detect the presence of abnormal physical signs, can be condoned; but failure to ask for and to examine the sputum repeatedly in any patient with chronic cough is inexcusable.

9. Absence of tubercle bacilli in the sputum means only that bronchial ulceration has not occurred.

10. The disease is practically always more extensive than the physical signs indicate.

Standardized Rest.

Discussing Standardized Rest in the Treatment of Pulmonary Tuberculosis (Thompson, South. Med. Jour.), endeavors to prove the following: (1) The word rest as applied to the treatment of tuberculosis is not standardized, it is used to express just what one has in mind, and therefore does not mean the same thing to any two of us. (2) Complete rest in bed is just as fundamental in the treatment of the disease as it is in the treatment of typhoid fever or pneumonia. (3) A long rest in bed is essential for healing the lungs. (4) Exercise has no place in the treatment of a tuberculous lesion, regardless of its location.

Thompson points out the advantage of so standardizing the word "rest" that no doubt exists in the patient's mind as to its meaning. He is opposed to regulated exercise and would explain to the patient exactly what he expects him to do. He does not dismiss with the advice to go to bed and stay there. If symptoms are at all marked he puts him in bed, has a black cloth tied over his eyes during the day and adjures him to keep still. No reading, writing or talking is permitted. Meals and bath are given in bed. As a rule, he says, the patient does not follow the course very long before the advice is found to be good and he can see results for himself. It is argued that what is accomplished by immobilization in bed is to stop absorption. When absorption is stopped, septic symptoms disappear, the patient gets fat and thinks he is recovering. The lesion, however, is unhealed, and treatment by complete rest must be continued. When the scar tissue is formed and healing is well established, the patient may get up. It is strongly urged that exercise should never be countenanced in the treatment of a tuberculous lesion, regardless of its location. Thompson does not wish to leave the impression that absolute rest in bed is the only essential in the treatment of tuberculosis. Proper food, a desirable climate, therapeutic agents, when needed, are important factors; but rest in bed is fundamental in every case of active tuberculosis and should be so regarded by the medical profession.

University Students Study Sanatorium Work.

Dr. Frank McCutchan, (Va. '20), has been appointed to the medical staff of Catawba Sanatorium.

On invitation from the resident physician at Catawba Sanatorium, the following medical students from the University of Virginia are at the sanatorium for two months' work in sanatorium methods of treating pulmonary tuberculosis:

Messrs. Carl Bishop, J. S. Lawrence, W. I. Prichard, C. L. Quaintance, J. H. Smith and C. T. Tunstall, and Dr. H. W. Kline, a recent graduate from the Medical College of Virginia.

New Plan for Tuberculosis Society.

Dr. Roy K. Flannagan, drafted during the war as Richmond health officer, and since the close of the war in charge of extension work of the State Board of Health, has been elected executive secretary of the Virginia Tuberculosis Society. Dr. Ennion G. Williams, State health commissioner, was reluctant to part with Dr. Flannagan from the State board staff, but at the urgent insistence of his associates on the tuberculosis society directorate, consented to the election, which was then made unanimous. Dr. Flannagan brings to his new duties Statewide acquaintance and appreciation of the problems his society is working to help solve.

B. L. Taliaferro.

The Truth About Medicine

During July the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Armour & Co.:
Tablets Anterior Pituitary 5 grains
Tablets Ovarian Substance 5 grains

Hynson, Westcott & Dunning:
Lutein, Sterile Solution of
Ovarian Residue—H. W. D.
Tablets Ovarian Residue—H. W. D.

Merck & Co.:
Benzyl Benzoate (Merck)

Organic Salt & Acid Co.:
Benzyl Benzoate (Organic Salt & Acid Co.)

Seydel Manufacturing Co.:
Benzyl Benzoate (Seydel)

E. Fougera & Co.:
Riodine

NEW AND NONOFFICIAL REMEDIES.

Pollen Antigen-Lederle (Fall Type).—A liquid obtained by extracting equal parts of the pollen

of ragweed, goldenrod, wormwood and maize. Each cubic centimeter contains 14,000 pollen units (a pollen unit is the equivalent of 0.001 Mg. of pollen). This liquid is made into fifteen different dilutions. The product is supplied in packages containing the fifteen dilutions (to be used for prophylactic treatment), in boxes containing five of the dilutions (series A, B and C, respectively), and in packages containing a single tube (for diagnostic use). Lederle Antitoxin Laboratories, New York.

Whole Ovary-H. W. D.—The ovarian gland of the cow, including the corpora lutea, freed from extraneous matter and dried in vacuo. For actions and uses, see general article on Ovary (New and Non-official Remedies, 1920, p. 201). Whole Ovary-H. W. D. is sold in the form of 5 grain tablets only. Hynson, Westcott & Dunning, Baltimore.

Benzyl Benzoate-Abbott.—A brand of benzyl benzoate (see New and Non-official Remedies, 1920, p. 49) complying with the N. N. R. standards. It is also supplied in the form of Elixir Benzyl Benzoate-Abbott and Benzyl Benzoate Tablets-Abbott, 3 grains. Abbott Laboratories, Chicago.

Benzyl Benzoate-Fritzsche.—A brand of benzyl benzoate (see New and Non-official Remedies, 1920, p. 49) complying with the N. N. R. standards. Fritzsche Brothers, Inc., New York.

Benzyl Benzoate-Merck.—A brand of benzyl benzoate (see New and Non-official Remedies, 1920, p. 49) complying with the N. N. R. standards. Merck & Co., New York.

Benzyl Benzoate-Organic Salt & Acid Co.—A brand of benzyl benzoate (see New and Non-official Remedies, 1920, p. 49) complying with the N. N. R. standards. Organic Salt & Acid Co., New York.

Ampules Ven-Iron Cacodylate.—Each ampule contains 0.03 Gm. (½ grain) of ferric cacodylate (see New and Non-official Remedies, 1920, p. 44) in physiological solution of sodium chloride. Intra Products Co., Denver Colo. (Jour. A. M. A., July 3, 1920, p. 35).

Diphtheria Toxin-Antitoxin Mixture (Gilliland).—Each cubic centimeter of diphtheria toxin-antitoxin mixture (see New and Non-official Remedies, 1920, p. 264) represents three lethal doses of toxin and approximately 3.2 units of antitoxin. Marketed in packages representing one immunizing treatment, and in packages containing ten treatments. Gilliland Laboratories, Inc., Ambler, Pa.

Gonococcus Glycerol-Vaccine (Lederle).—A suspension of killed gonococci in a vehicle of glycerol and physiological solution of sodium chloride. For a discussion of gonococcus vaccine, see New and Non-official Remedies, 1920, p. 283. Marketed in packages of fifteen vials containing progressive amounts of the vaccine (Jour. A. M. A., July 17, 1920, p. 177).

PROPAGANDA FOR REFORM.

Acriflavine G H and Proflavine G H.—Acriflavine and proflavine have been admitted to New and Non-official Remedies. However, the products sold by the Heyl Laboratories as "Acriflavine G H" and "Proflavine G H" have not been accepted for New and Non-official Remedies because (1) their quality did not conform to the Council's standards, and (2) in the advertising issued for these drugs the manufacturer failed to give the unfavorable as well as the favorable clinical reports that have been published (Jour. A. M. A., July 3, 1920, p. 51).

Antidote for Snake Poison.—No Anti-Venom for snake poison has been accepted for New and Non-official Remedies. Experiments looking toward the production of anti-venom for snake poisoning seem to have met with some success, but the use of these products in therapy is still in the experimental stage. In general it has been shown that an anti-venom prepared for one species is not always effective when used against the venom of another species (Jour. A. M. A., July 3, 1920, p. 51).

Products of the American Organotherapy Co.—Dr. Alfred A. Lowenthal has announced a "Post Graduate Course of Lectures and Clinics" to the physicians of Chicago, Denver, St. Louis, Columbus, etc.—and incidentally brings to the attention of the medical world the alleged virtues of the products of the American Organotherapy Company. A few years ago, the American Animal Therapy Company of Chicago put out such products as Lymphoid Compound (Lowenthal), Ova Mammoid (Lowenthal) and Prostoid (Lowenthal), and these products were exploited to the public (Jour. A. M. A., July 3, 1920, p. 49).

Echitone and Echinacea.—A circular entitled "Skin Lesions of Unknown and Uncertain Origin" sent out by Strong, Cobb & Co. is devoted to the exploitation of "Echitone," stated to contain echinacea, blue flag and pansy. Several years ago, the Council on Pharmacy and Chemistry examined "Echitone" and rejected the product because unwarranted therapeutic claims were made for it and for other reasons. The drug echinacea has been claimed to be a "specific" for rattlesnake bites, syphilis, typhoid, malaria, diphtheria and hydrophobia. It has also been credited by enthusiasts with curative effect in tuberculosis, tetanus and exophthalmic goiter, and with the power of retarding the development of cancer. The Council on Pharmacy and Chemistry examined the claims made for this drug and reported that there was no reliable evidence in substantiation of the claims made for it. Echinacea is one of the many vegetable drugs introduced by the eclectics without a rational basis for their use (Jour. A. M. A., July 17, 1920, p. 193).

Na Versus K.—Advantages of sodium over potassium salts: (1) **Rational therapeutics.** Sodium compounds are as efficient as, and in many instances better than the corresponding potassium compounds. Potassium is more toxic. (2) **National aid.** Accustom yourself to use sodium, an abundant natural product of the United States. The home of potassium is Germany, which, to its own commercial gain, popularized potassium drugs. (3) **Price.** Sodium salts are cheaper. Potassium is, relatively speaking, a foreign substance in the body. Potassium and sodium salts are prescribed mainly for the effects of the radicle they carry. It is illogical, therefore, to administer potassium acetate or potassium bromid when sodium acetate or sodium bromid can more readily be given. In spite of the smaller demand, sodium salts are on the whole cheaper than potassium salts and, should the medical profession prescribe the sodium more generally, all of those that might be used in medicine would be less expensive than the correspond-

ing potassium salt (Jour. A. M. A., July 17, 1920, p. 192).

Boracetine.—Boracetine (F. E. Barr & Co., Chicago) in 1919 was heralded as "The Guardian of Health." It was claimed to be "an **all-around** antiseptic, especially good for pyorrhea, sore gums, sore throat, etc., excellent for cuts, bruises, insect bites, skin eruptions and, in fact, any condition when an efficient healing agent and germ destroyer is needed." It was also recommended to "get rid of that 'dark brown taste.'" Indirectly Boracetine was also claimed to be a preventive of consumption, scarlet fever, diphtheria, etc. From the analysis made in the A. M. A. Chemical Laboratory it appears that Boracetine is nothing more wonderful than **Liquor Antisepticus, N. F.**, with a dash of formaldehyd. The more "patent medicines" are analyzed the more obvious becomes the commercial wisdom of the nostrum interests to fighting formula disclosure. Secrecy and mystery are the "back bone" of the "patent medicine" industry (Jour. A. M. A., July 17, 1920, p. 192).

Chaulmoogra Oil in Leprosy.—The results obtained with the treatment of lepers at the leprosy investigation station in Kalihi, Hawaii, with the ethyl esters from chaulmoogra oil have been encouraging. It will require, however, some time to determine whether a real cure for leprosy has been discovered (Jour. A. M. A., July 24, 1920, p. 263).

Chemotherapy of Tuberculosis and the "Cerium Salt Treatment."—Koch studied the effects of many chemical substances, including a gold cyanid compound, on the growth of the tubercle bacillus in cultures, and concluded that all these substances remained completely inactive when tested upon the tuberculous animal. Compounds related to guaiacol and creosote came to have a widespread reputation as tuberculocidal agents without any one's taking the trouble to ascertain definitely whether they really had any particular capacity to injure tubercle bacilli in the test tube, the tuberculous animal or the consumptive patient, although the German manufacturing chemists provided innumerable proprietary derivatives of these drugs. Some time before the war, a "complex lecithin-copper compound" of unannounced composition was put forward in Germany. Another copper cure came from Tokyo, "cyanocuprol" of Koga. Other copper compounds, such as copper arsphenamine, also were brought out. But none of these copper compounds have settled the tuberculosis problem. Recently, newspapers have given publicity to the treatment of tuberculosis by the so-called cerium earth salts in France. It appears that a few observations have been made on the inhibitory action on the growth of tubercle bacilli of salts of cerium and some other rare earth metals. The inhibitory action was less than that observed in the past for other chemical substances, and there is no record of experiments to determine their effect on experimental tuberculosis. Possibly cerium earth salts help the tuberculosis; the evidence so far presented, however, is nothing to get excited about (Jour. A. M. A., July 24, 1920, p. 246).

More Misbranded Drug Products and Nostrums.—The following products have been the subject of prosecution by the federal authorities under the Food and Drugs Act: Seelye's Wasa-Tusa, Dr. Seelye's Compound Extract of Sarsaparilla, Seelye's Laxa-Tena, Seelye's Cough and La Grippe Remedy and Seelye's Fluorilla Compound (A. B. Seelye Medical Company) were misbranded because the therapeutic claims were unwarranted. Aspirin Tablets (Verandah Chemical Company) were misbranded because they contained no acetylsalicylic acid (aspirin). Dr. Grove's Anodyne for Infants (Smith, Klein & French Company) was misbranded because the therapeutic claims were unwarranted and because the carton failed to contain a statement of the quantity and proportion of morphine and alcohol contained therein. Cacapon Healing Water (Capon Springs Company) was adulterated in that it consisted in part of a filthy, decomposed and putrid animal and vegetable substance and misbranded because the curative claims were unwarranted. Seawright Water (Seawright Magnesian Lithia Spring Company) was adulterated in that it consisted in part of a filthy and decomposed vegetable substance (Jour. A. M. A., July 24, 1920, p. 261).

Benzyl Benzoate.—The chemical properties of benzyl benzoate have been known for years. Its therapeutic properties as an anti-spasmodic have been known only a short time. Before this new addition to our materia medica can be given thorough clinical trial, it is necessary that the products be of a quality sufficiently pure for medicinal use. For the physician's protection, as well as for an aid to the manufacturer, the A. M. A. Chemical Laboratory, at the request of the Council on Pharmacy and Chemistry, has elaborated purity standards. It has also examined the market supply and found that, on the whole, the non-proprietary medicinal brands are of a satisfactory grade for clinical use (Jour. A. M. A., July 31, 1920, p. 335).

A Shotgun Mixture.—It is stated that the following prescription is used with success in "intestinal cases of a medical type": zinc sulphocarbolate, 0.5; bismuth subnitrate, 15.0; bismuth betanaphtholate, 8.0; camphorated tincture of opium, 15.0; syrup of acacia, 30.0; elixir lactopeptine, to make 120.0. In this, the chief active ingredients are bismuth subnitrate and camphorated tincture of opium. The zinc sulphocarbolate is superfluous. The action of the bismuth betanaphtholate probably does not differ from that of bismuth subnitrate, and cinnamon water or simple elixir might as well be substituted for elixir lactopeptine (Jour. A. M. A., July 31, 1920, p. 335).

Correspondence

Shortage of Doctors in Rural Sections of Virginia.

ROANOKE, VA., *July* 31, 1920.

TO THE EDITOR:

It has been suggested by members of the Council that since the matter of licensing physicians in the State is one of very great importance, a summary of the proceedings of our Board should from time to time be published in the Journal, and in compliance therewith I am pleased to forward you the questions submitted at our recent meeting, to-

gether with a tabulated report of applicants licensed.

I think it may also be of interest to state that aside from the usual routine of examination, a very important matter requiring the attention of the Board at the recent meeting was a communication from the Governor, which read as follows:

To the Secretary State Board of Medical Examiners:

The serious shortage of doctors which exists in Virginia has been brought to my attention by the State Board of Health, and I believe that the best interests of the State will be served if the State Board of Medical Examiners would make a careful study of the situation and endeavor to find a practical method of meeting the emergency.

I will be glad to have the Board take this matter up and advise me of its conclusions.

Westmoreland Davis,
Governor.

In compliance with this request, Dr. Moncure and Dr. Boyd, of our Board, were appointed to co-operate with Dr. Williams, of the Board of Health, and were instructed to make a careful study of the situation and to embody their conclusions in a report at as early a date as practicable.

Since the matter under consideration is one of far-reaching importance involving intricate problems relative to the supply and demand of physicians, and the health of the individuals of the State, our committee would welcome constructive suggestions bearing upon the situation.

As a matter of fact, the first problem to be determined by the committee is whether the apparent scarcity of doctors in certain rural sections actually means that the number of physicians per capita of population in the State is too few, or whether, on the other hand, it be primarily a matter of an unequal distribution, resulting from the general drift of people to the centers, doctors being no exception.

The second problem is a comparatively new one and more difficult to approach, embodying as it does the part played in prophylaxis of present day medicine. To be more explicit, it is well known that until within the recent past quite a proportion of the income of doctors residing in country districts, as elsewhere, was derived from the treatment of typhoid fever. This has practically become a thing of the past. The prevention of malaria, hookworm, dysentery and diphtheria have likewise lessened the work to be done and consequently perhaps increased the per capita in any given locality, necessary to support a doctor.

Weighed against the above also is the hesitancy upon the part of many rural districts to take an active part in road building and thereby practically driving doctors, who of necessity spend much of their time upon the roads, to more progressive localities.

The desire of the Governor to ascertain the facts of the whole situation before recommending legislation is commendable. It is a source of pride that Virginia has always stood well to the front in matters pertaining to health and medical education, and now, with a satisfactory merger of our two medical schools in sight and a spirit of fairness and co-operation manifested, there is every reason to hope that plans may be evolved that will serve the best interests of the public and profession alike.

Should it turn out that there is a need that more doctors be trained in the State the proper expenditure of funds will provide the necessary facilities, but to induce young men to enter a profession at this time and to establish themselves in isolated localities when the emoluments of business life are greater is quite another question, and one which demands mature consideration.

J. W. Preston,
Secretary-Treasurer,
Va. State Board Medical Examiners.

Book Announcements

Cosmetic Nostrums and Allied Preparations. Prepared and issued by the Propaganda Department of Journal of American Medical Association. 535 N. Dearborn Street, Chicago. 1920. Paper, 32 pages. Price, 15 cents.

This pamphlet is divided into three parts: Preparations for the Skin; Preparations for the Hair; Deodorants, Depilatories, etc. It is issued by the Propaganda Dpartment of *The Journal of the American Medical Association* as part of its work in giving the public the facts regarding the nostrum evil and quackery and exposes the claims made by manufacturers of many cosmetic preparations advertised and sold daily all over the country.

MEDICAL SOCIETY OF VIRGINIA.

PROGRAM

of the

FIFTY-FIRST ANNUAL SESSION

October 26-29, 1920.

PETERSBURG, VIRGINIA.

Sessions will be held in the auditorium of the Petersburg High School.

Dr. F. J. Wright, Chairman Local Committee of Arrangements.

MEDICAL SOCIETY OF VIRGINIA.
OFFICERS.

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Vice-Presidents.....
Dr. M. J. Payne, Staunton
Dr. Geo. T. Klipstein, Alexandria
Dr. Geo. J. Williams, Newport News

Sec'y-Treas. and Bus. Mgr...G. H. Winfrey, Richmond

Chairman Membership Committee,
Dr. J. A. White, Richmond

Chairman Legislative Committee,
Dr. H. U. Stephenson, Toano

Chairman Judiciary Committee,
Dr. William F. Drewry, Petersburg

Chairman Necrological Committee,
Dr. Charles M. Edwards, Richmond

EXECUTIVE COUNCIL.

Dr. E. L. Kendig, *Chairman.*
Dr. Alex. G. Brown, Jr., *Clerk.*

STATE AT LARGE.

Dr. Paul W. Howle
Dr. I. E. Huff
Dr. R. L. Williams
Dr. W. R. Cushing
Dr. Beverley R. Tucker

First District .....Dr. Clarence Porter Jones
Second District.....Dr. Chas. R. Grandy
Third District.....Dr. Alex. G. Brown, Jr.
Fourth District.....Dr. E. L. Kendig
Fifth District.....Dr. R. A. Moore
Sixth District.....Dr. E. P. Tompkins
Seventh District.....Dr. J. C. Flippin
Eighth District.....Dr. S. W. Maphis
Ninth District.....Dr. Isaac Peirce
Tenth District.....Dr. Chas. H. Davidson

Delegates to the American Medical Association.

Dr. Ennion G. Williams, Richmond.
Dr. Wm. E. Anderson, Farmville.
Dr. Southgate Leigh, Norfolk.

PROCEEDINGS

TUESDAY, OCTOBER 26

8:00 P. M.

Meeting for the public and the profession.

The Society will be called to order by Dr. F. J. Wright, Chairman of Local Committee of Arrangements.

Invocation.....Rev. Daniel T. Merritt, Petersburg

Address of Welcome,
Hon. Saml. W. Zimmer, Mayor of Petersburg

Announcements of Local Committee of Arrangements

Address of President,
Dr. Paulus A. Irving, Farmville

Report of the Executive Council.

Reports of Committees and Delegates.

Report of Secretary-Treasurer.

Moving Picture Demonstration of the Diagnosis of Tuberculosis and Chest Examinations as Shown in the Tuberculosis Division of the United States Army.

WEDNESDAY, OCTOBER 27

9:00 A. M.—Meeting of the House of Delegates.

The County or Component Societies are urged to send to this meeting their quota of delegates. Each Society is entitled to one delegate and an additional delegate for every thirty-five members or major fraction thereof.

10:00 A. M. to 1:30 P. M.—Report of Clinical Cases. (Five minutes for each report).

SUBJECT FOR DISCUSSION

Acute Non-Tuberculous Infections of the Lungs and Pleura

(a) Etiology and Pathology,
Dr. F. C. Rinker, Norfolk

(b) Symptomatology and Diagnosis,
Dr. Manfred Call, Richmond

(c) Medical Treatment of Pneumonia,
Dr. J. W. Preston, Roanoke

(d) Medical Treatment Except Pneumonia,
Dr. Geo. B. Lawson, Roanoke

(e) Surgical Treatment,
Dr. Don Preston Peters, Lynchburg

Abolition of Venereal Disease,
Dr. George Walker (*invited guest*), Baltimore, Md.

Foreign Bodies in Respiratory Tract and Their Removal by the Laryngoscope and Bronschoscope. (Report of Seventeen Cases).
Dr. J. E. Diehl, Norfolk

The Care of Patients in Remote Rural Districts. The County Hospital.
Dr. I. S. Stone, Washington, D. C.

Varying Blood Pressure Findings,
Dr. Garnett Nelson, Richmond

WEDNESDAY AFTERNOON

3:00 to 6:00 P. M.

Co-operation in the T-B Fight in Virginia,
Dr. Roy K. Flannagan, Richmond

Co-ordination of Anti-Tuberculosis Measures,
Dr. Walter C. Klotz, Charlottesville

Mouth Breathing.....Dr. E. E. Watson, Salem

Corelation of Signs and Symptoms in the Diagnosis of Pulmonary Tuberculosis,
Dr. H. G. Carter, Burkeville

The Function of the Local Tuberculosis Clinic,
Dr. Chas. R. Grandy, Norfolk

Report of 125 Cases of Artificial Pneumothorax,
Dr. B. L. Taliaferro, Catawba Sanatorium
Dr. J. B. Nicholls, Catawba Sanatorium

The X-Ray in Tuberculosis of the Lungs,
Dr. Jos. T. McKinney, Roanoke

WEDNESDAY EVENING

8:00 to 10:00 P. M.

Entertainment (announcement to be made later)

THURSDAY, OCTOBER 28
9:00 A. M. to 1:30 P. M.

Nitrous Oxide-Oxygen Anesthesia in Obstetrics. A Preliminary Report.
Dr. G. Bentley Byrd, Sarah Leigh Clinic, Norfolk
Obstetrics de Luxe.....Dr. M. P. Rucker, Richmond
Statistics from 2,344 Clinical Cases of Obstetrics,
Dr. Greer Baughman, Richmond
Eclampsia and Its Conservative Treatment,
Dr. Joseph Bear, Richmond
The Treatment of Various Types of Goitre,
Dr. Stuart McGuire, Richmond
Conservative Application of Radium in the Benign Condition of the Uterus,
Dr. R. L. Payne, Norfolk
The Importance of Early Diagnosis and Early Removal of Ovarian Cystomata,
Dr. Lowndes Peple, Richmond
Sliding Hernia with Case Report,
Dr. S. S. Gale, Roanoke
Inguinal Hernia: Operative Treatment,
Dr. J. W. Henson, Richmond
Cardiospasm: Report of Cases,
Dr. R. C. Fravel, Richmond
Further Observations on Removal of the Gall Bladder Without Drainage....Dr. Murat Wills, Richmond
The Examination of the Eye in Neuro-Surgical Cases.....Dr. John H. Baird, Richmond

THURSDAY AFTERNOON
3:00 to 6:00

SPECIAL ORDER—Report of House of Delegates.
Entertainment (*announcement to be made later*).

THURSDAY EVENING
8:00 to 10:00 P. M.

Some Observations on Fever in Infancy,
Dr. Clifford G. Grulee (*invited guest*), Chicago, Ill.
Syphilis in Children.....Dr. L. T. Royster, Norfolk
Simple Milk Dilutions in Infant Feeding,
Dr. McGuire Newton, Richmond
The Treatment of Diphtheria,
Dr. W. L. Harris, Norfolk
Some Clinical Manifestations of Chronic Appendicitis in Children. Diagnosis by X-Rays. (Lantern slides).....Dr. A. L. Gray, Richmond
The Importance of Early Recognition and Treatment of Bone and Joint Infections. (Lantern slides).
Dr. W. T. Graham, Richmond
The Artificial Feeding of Infants,
Dr. Dwight Rivers, Lynchburg

FRIDAY, OCTOBER 29
10:00 A. M. to 1:30 P. M.

The Groundwork of Psychotherapy,
Dr. Tom A. Williams, Washington, D. C.
Intraspinous Treatment of Syphilis of the Nervous System.....Dr. M. C. Sycle, Richmond
The Treatment of Cerebrospinal Lues,
Dr. R. Finley Gayle, Jr., Richmond
Epilepsies in Association with Endocrine Dyscrasia,
Dr. J. Allison Hodges, Richmond
Endocrin Substance.....Dr. H. W. Phillips, Norfolk
The Roentgen Ray in the Treatment of Hyperthyroidism.....Dr. Fred M. Hodges, Richmond
Factors in the Control of Metabolic Disturbances,
Dr. Willis Wilson Silvester, Norfolk
X-Ray as an Aid in Diagnosis in Internal Medicine,
Dr. Alex G. Brown, Jr., Richmond
Certain Types of Cerebral Manifestations of Cardio-Vascular Diseases,
Dr. William H. Higgins, Richmond
The Use of the Electrocardiograph in the Diagnosis and Treatment of Heart Disease,
Dr. J. Morrison Hutcheson, Richmond

FRIDAY AFTERNOON
3:00 to 6:00 P. M.

(Subject to be Announced),
Dr. William Zentmayer (invited guest), Philadelphia, Pa.
Headache from the Standpoint of the Ophthalmologist and Oto-Laryngologist,
Dr. Elbyrne Gill, Roanoke
Keep the Well Child Well,
Dr. R. W. Garnett, Danville
Management of Venereal Disease Clinics,
Dr. Thos. B. Leonard, Director of Clinics, U. S. P. H. S., Richmond.
Pulmonary Abscess Following Tonsillectomy,
Dr. W. B. Porter, Richmond
Phagedenic Ulcer,
Dr. Harry T. Marshall, University
A Roentgen Study of Indigestion,
Dr. James W. Hunter, Norfolk
The Treatment of Hare Lip and Cleft Palate. (Lantern slides).....Dr. C. C. Coleman, Richmond
Typhoid: Its Etiology, Symptomatology, Pathology and Treatment,
Dr. H. Benj. Treakle, Richmond
The Value of Autopsies, With Report of Cases,
Dr. K. D. Graves, Roanoke
An Iridectomy Versus Cornea-Scleral Trephining in Glaucoma.....Dr. J. Warren White, Norfolk
An Iridectomy Versus Corneo-Scleral Trephining in Porro-Cesarean Section in Presumably Infected Cases. Report of Case.
Dr. Virginius Harrison, Richmond

FRIDAY EVENING
8:00 to 10:00 P. M.

Unfinished Business.
Papers—Subjects to be announced.
Introduction of President-Elect.
Adjournment.

PAPERS AND DISCUSSIONS.

The time limit in reading a paper is twenty minutes. In discussions or speaking to a motion no speech is to exceed five minutes, and no speaker is permitted more than twice in discussing a paper or speaking to a motion. The absence of the author when his paper is called in the regular sequence relegates such a paper to the end of the program.

Papers are the property of the Society and must be handed to the Secretary just after being read.

REGISTRATION, BUTTONS, ETC.

All members, fraternal delegates, invited guests and visitors are requested to register promptly. Registration cards may be gotten at the Registrar's desk. Any member who has not already been provided with a Society button may secure one from the Registrar. Any member who has already been provided with a button, but lost or mislaid it, may get another at cost.

ANNUAL DUES.

Members, not members of county societies, are requested to remit the annual dues ($4.00) to the Treasurer as promptly as possible.

CHANGE OF ADDRESS.

Members will please notify the Secretary of change in postoffice addresses.

EXHIBITS.

Ample space has been reserved for exhibits of medical and surgical supplies, etc.

Doctors who expect ladies to accompany them will please notify Chairman of Entertainment Committee.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, APRIL, 1874.

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ALEX. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
BEVERLEY R. TUCKER, M. D., Richmond, Va.
PAUL W. HOWLE, M. D., Richmond, Va.
EDWIN L. KENDIG, M. D., Victoria, Va.
ALFRED L. GRAY, M. D., Richmond, Va.

EDITOR
ALEX. G. BROWN, Jr., M. D.
G. H. WINFREY, Business Manager.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

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Editorial

"Cheyne-Stokes" Respiration.*

This irregularity of the respiration or respiratory arrhythmia is an important system of clinical medicine. The Cheyne-Stokes breathing consists of alternating periods of complete apnea and of group respirations. The stage of suspended respiration is usually shorter than that of respiration. The respiratory period is usually marked by a varying size of individual breaths, the beginning being shallow, the middle deeper and terminating breaths short breaths.

While in itself it is not a pathological phenomenon, it is seen clinically as an expression of, or an effect resulting from, pathological states in the body. The most usual conditions with which it is associated are (1) cerebral lesions, accompanied by increased intra-cranial pressure, (2) arteriosclerosis, (3) uremia, (4) myocardial decompensation, (5) lesion of aortic valve with decompensation, (6) heart and blood-vessel and kidney diseases. It is taken very rightly, as an ominous sign in the clinical evaluation of circulatory diseases.

The explanations of the cause of this type of respiration are connected with variations in blood-pressure.

Eyster's experimental studies of arryhthmic breathing in cases of increased intracranial pressure showed a striking relationship between changes of blood-pressure and the alternating periods of breathing and apnea. The apnea was thought to be due to the fact that the respiratory center of excitability was lowered by the anemia resulting from a fall of blood-pressure below the threshold of the respiratory demand upon that center. During this period of suspended breathing the blood-toxins increasingly affect the vasomotor center which, through constriction of caliber of blood vessels, produce a rise of blood-pressure, which in turn increases flow of blood to medulla. This quickly starts the respiratory center to act. Next, resulting from the alteration of the blood that follows, the vasomotor center relaxes and the pressure falls again. From this there results in time a fall of blood-pressure below the level of the stimulus needed. During this latter period, respirations vary in frequency and depth.

* Read—Peabody, F. W. Oxford Medicine, Part 5.

"The Two-Hour Renal Test."

The normal kidney excretes water and urinary solids in relation to the amount of fluid and food in-take, the body being in quiescent state. For instance, in a normal man, if large amounts of fluid are taken, the specific gravity quickly decreases as the amount of urine increases. Based upon this, in the two-hour renal test, observations are made of the specific gravity, samples of urine being secured every two hours from 7 A. M. to 9 P. M. and from one sample taken from 9 P. M. to 7 A. M. Each sample of urine is measured, specific gravity taken; if possible, the sodium chloride and nitrogen is calculated also.

In order to secure a standardized diet, the following has been adopted at the Peter Bent Brigham Hospital for this test:

Breakfast: Orange 50 grams, oatmeal 150 grams and milk 25 cc, 1 egg 50 grams, toast 20 grams, sugar 10 grams and cream 20 cc to be used with 150 cc of tea or coffee.

Midday meal: Milk (in soup) 150 cc, steak 75 grams, potatoes 100 grams and butter 10 grams, peas 100 grams and butter 10 grams, bread 20 grams and butter 5 grams, ice cream composed of milk 100 cc, cream 20 cc, sugar 3.5 grams, and water 500 cc with this meal.

Evening meal: Tomatoes 75 grams and butter 10 grams, lettuce 20 grams with celery 50 grams and olive oil 20 cc, bread 20 grams and butter 5 grams, baked apple 100 grams with sugar 20 grams and cream 20 cc, with water 500 cc during meal, 250 cc later during evening.

Upon a standard series of meals like the above, in normal kidneys there will be a considerable variation in the amount and specific gravity of the urine in the two-hour samples collected. If the kidneys are diseased there is less variation, but more of a "fixation" in both amount and specific gravity, indicating impairment of renal function and a retention. In diseased kidneys also the night excretion will exceed the average of normal, 400 cc. This test is particularly useful for kidneys having only slight changes in which other renal function-tests are inaccurate.

$4,748.00—743 Members.

Seven hundred and forty-three (743) members of the Society at this time, September 1st, owe their State organization four thousand seven hundred and forty-eight ($4,748.00) dollars.

The satisfactory handling of the business of the Society requires the regular income of not less than one thousand dollars per month. The principal item of expense is the Journal, to the success of which the Society is pledged. Members have written asking why the treasurer is so interested in collecting dues before the meeting of the Society in October; therefore this explanation.

Contracts already made will make it necessary to collect all the money owing the Society by its members. Doctor, wont you please let us have your check in September and not wait until October?

G. H. Winfrey.

Component Societies—Renewed Life.

This month the secretary will spend a large part of his time in the field—reviving societies which have not yet recovered from the effects of the war. Two have already shown renewed activity and a strong effort will be made to bring about the reorganization of not less than eight more.

Many important matters are before the people of the State, several of which are of vital concern to the medical profession, and about which the profession can speak with authority. Your persuasive influence will be felt in the State legislature and, by that strongest of all forces, public opinion, only in the same proportion as you are organized.

If the physicians of Virginia discover within the next few years that their interests in this State are lightly regarded they will have themselves only to thank.

Live county and city societies should secure as members all properly qualified physicians who live up to the high standards of the profession. We are confident that every previously organized but now listless county and district society will be restored to renewed activity within the next few months. New ones will be organized in many counties while some will probably be grouped like the very active Southwest Virginia Medical Society.

Right now, though, will you not bring or send to the meeting of the State Society in Petersburg, applications for membership from the reputable physicians of your community?

G. H. Winfrey.

News Notes

Medical Society of Virginia Meeting.

A great deal of interest is being manifested in the Petersburg meeting of the Medical Society of Virginia, which is to be held October 26 to 29, inclusive. A large number of local committees have been appointed to arrange the various details for this—the first meeting of the Society in Petersburg since 1877, when Dr. John Herbert Claiborne, of that city, was president.

Many of the members of our Society received their military training during the recent war just outside of Petersburg at Camp Lee. To them a visit to Petersburg at this time should be of especial interest, in view of the probability of the early dismantling of the camp. For those who have not previously visited Petersburg, there are many other attractions, among which we may mention a visit to Hopewell—the city which sprung up like a mushroom during the war and, after a state of post-war nearlethargy, is again looming ahead with the establishment of many new industries.

Let's "get-together" and make the Petersburg meeting one of the best in the history of the Society. The program, which appears in this issue, indicates that a number of interesting medical and surgical subjects will be brought up for discussion. The new plan of organization adopted at our 1919 meeting is also likely to receive some attention.

All local societies should at once send names of their delegates and alternates for this meeting to Mr. G. H. Winfrey, Secretary-Treas-

urer, Medical Society of Virginia, Richmond. Make hotel reservations promptly. If later, any member finds it will be impossible to attend the meeting, cancellation may be made up to 6 P. M. on date of reservation.

Below is given a list of local committees in charge of the Petersburg meeting.

GENERAL COMMITTEE OF ARRANGEMENTS.

Physicians.

Dr. F. J. Wright, Chairman; Dr. R. A. Martin, Vice-Chairman; Doctors J. R. Beckwith, W. S. Briggs, (Dinwiddie), H. A. Burke, J. M. Burke, C. S. Dodd, W. F. Drewry, L. S. Early, E. W. Finch, (Dinwiddie), G. W. Fultz, F. W. Hains, J. M. Harwood, W. P. Hoy, C. T. Jones, J. Bolling Jones, R. H. Jones, R. T. Hawks, (Dinwiddie), D. C. Mayes, (Dinwiddie), C. M. McCuiston, E. L. McGill, W. C. Moomaw, J. D. Osborne, E. W. Perkins, (Dinwiddie), J. A. Pilout, (Dinwiddie), W. C. Powell, G. H. Reese, J. T. Shelburne, J. E. Smith, D. D. Willcox, J. M. Williams, H. L. Wyatt and E. W. Young.

LAYMEN REPRESENTING THE CITY AND VARIOUS CIVIC ORGANIZATIONS.

City Government.

G. C. Wright, S. W. Zimmer, and the City Manager.

Chamber of Commerce.

I. Val Parham, W. M. Martin, Thomas Whyte, and Hon. P. H. Drewry.

Rotary Club.

W. S. Ligon, H. Carter Myers, W. T. Baugh and V. R. Beachy.

Young Business Men's Club.

R. W. Prichard, Jr., J. E. F. King, E. H. Crutchfield, C. C. Fore, J. L. Holmes, William Pilcher, D. D. S., and Harvey Seward.

Schools.

Arthur K. Davis, F. M. Martin, H. S. Seward, and H. D. Wolff.

The Press.

Walter Edward Harris, A. E. Burgess, H. P. Guerrant, and Hon. S. D. Rogers.

HONORARY MEMBERS OF COMMITTEE REPRESENTING CAMP LEE.

Major General Omar Bundy, Commanding Officer, Camp Lee.

Colonel Brownlee, Chief Surgeon.

Major Todd, Chief of Sanitation.

SUB-COMMITTEES.

Executive and Reception Committee.

Dr. F. J. Wright, Chairman; Dr. R. A. Martin, Vice-Chairman; Dr. J. M. Harwood, Secretary and Treasurer; Doctors H. Aulick Burke, W. F. Drewry, J. Bolling Jones, E. L. McGill, and Messrs. W. M. Martin and H. Carter Myers.

Finance Committee.

H. Carter Myers, Chairman; Dr. J. M. Harwood, Treasurer; and Messrs. W. T. Baugh, J. W. Ferrell, R. C. Parsons, W. H. Willcox, G. C. Wright, and Drs. J. M. Burke, C. S. Dodd, D. C. Mayes and W. C. Powell.

Committee on Hotels and Boarding Houses.

Dr. J. Bolling Jones, Chairman; Drs. W. P. Hoy, J. T. Shelburne, J. E. Smith, H. L. Wyatt, Messrs. V. R. Beachy, Edward Eigenbrun and C. C. Fore.

Committee on Entertainments.

W. M. Martin, Chairman; Drs. J. R. Beckwith, J. O. Osborne, J. M. Williams, and Messrs. W. S. Ligon, I. Val Parham, R. W. Prichard, Jr., H. S. Seward, and Thomas Whyte.

Committee on Headquarters and Exhibits.

Dr. H. Aulick Burke, Chairman; and Drs. L. S. Early, F. W. Hains, R. H. Jones, W. C. Moomaw, E. W. Young, and Messrs. J. F. L. King, F. M. Martin and H. D. Wolff.

Committee on Publicity and Papers.

Dr. Wm. F. Drewry, Chairman, and Drs. G. W. Fultz, C. M. McCuiston, and Messrs. A. E. Burgess, A. K. Davis, Walter E. Harris, S. D. Rogers, and S. W. Zimmer.

Committee on Badges, Placards, Etc.

Dr. R. A. Martin, Chairman; Drs. W. S. Briggs, E. W. Finch, E. W. Perkins, J. A. Pilout, D. D. Willcox, and Messrs. H. P. Guerrant, R. W. Prichard, Jr., and Harvey Seward.

Committee on Transportation, Automobiles and Street Cars.

Dr. E. L. McGill, Chairman, and Drs. C. T. Jones, G. H. Reese, Messrs. E. H. Crutchfield and J. L. Holmes.

COMMITTEE OF LADIES.

The ladies constituting the Executive and Reception Committee are:

Mesdames F. J. Wright, H. A. Burke, W. F. Drewry, J. M. Harwood, J. Bolling Jones, R. A. Martin, Carter Myers, W. H. Patteson, and Miss Anne M. Cooper.

The personnel of the Ladies' General Committee will be completed at an early date.

Two Petersburg Hospitals of Interest to Physicians.

CENTRAL STATE HOSPITAL.

The Central State Hospital is located in Dinwiddie County, about two miles west of Petersburg. It is conveniently reached by the Washington street electric car line to Ferndale Park; two main public roads also pass through the hospital premises.

There are at this time over 1,700 patients cared for in the various departments of the institution, viz., buildings and departments for the recent and acute cases, the physically ill, the infirm, chronic, tubercular, epileptic, and the criminal. Steps are now being taken to have a separate department, or colony, for the feebleminded. There are also located on the 650 acre farm, 4 farm colonies, or groups of cottages, for a large number of patients who work on the farm, take care of the stock, etc.

The hospital was established in Richmond, in 1870, and re-established on its present site in 1885. It is the largest institution in the State. The main buildings, which are brick, are sur-

rounded by large grounds, with trees and shrubbery.

Physicians attending the meeting of the Medical Society in Petersburg, October 26-29, who may desire to visit the hospital, will receive a cordial welcome there by the resident officers, and be given an opportunity to see the institution and how the patients are cared for and treated. The medical staff consists of Dr. W. F. Drewry, superintendent; Dr. H. C. Henry, first assistant physician; Dr. M. S. Brent, second assistant physician, and two clinical assistants.

The Petersburg Hospital.

One of the chief assets of the Cockade City is the Petersburg Hospital, located at the east end of Washington street. The institution had its origin 30 years ago, in a room or two on South Sycamore street. Until last year the hospital was under control of a Board of Lady Managers, representing the congregations of various churches in the city. These ladies rendered splendid service to the community.

Under a revised charter and reorganization, in 1919, the hospital was placed under the management of a board of 12 directors, consisting of physicians, ladies, and business men. All the members of the Petersburg Medical Faculty have the privilege of having patients in the hospital.

The institution is supported by voluntary subscriptions, donations, funds derived from the board and care of paying patients, and an annual appropriation from the city, the latter being made on the condition that indigent patients be cared for and treated there.

The hospital consists of an attractive brick building for patients, a modern operating room, and accommodations for officers, nurses and employees. The directors have planned to raise a fund of $65,000 for the enlargement and general improvement of the institution, and especially for the construction of a more modern home for the nurses and employees.

The Board of Directors and others connected with the management of the hospital, extend to the physicians attending the meeting of the State Medical Society, in October, invitation to visit the hospital at any time they may desire to do so.

"Movie" of Chest Examinations.

Any physician interested in the diagnosis of chest conditions will do well to see the moving picture demonstration of chest examinations as conducted by the United States Army, which will be shown during the meeting of the Medical Society of Virginia. These pictures were made by order of the Surgeon General of the United States Army and were used as part of the course in teaching army surgeons physical diagnosis. They are particularly clear, interesting and instructive. The graphic description of the various phases and the physics of physical diagnosis are most impressively shown. The latent rale, which is brought out by the expiration cough, is especially well shown by means of diagrams.

These pictures have been shown in many parts of the country and, wherever exhibited, have aroused much interest.

North Atlantic Tuberculosis Conference.

Of unusual interest is the meeting of the North Atlantic Tuberculosis Conference, which is to be held in this city, October 7 and 8, under the auspices of the National Tuberculosis Association. Sessions will be held in the auditorium of Jefferson Hotel. Between two and three hundred persons actively interested and engaged in the war on tuberculosis will be in attendance and a number of prominent speakers are on the program to discuss the various means of combating the white plague.

Capt. W. W. Baker, of Chesterfield County, Va., will preside over the conference and Dr. Roy K. Flannagan, director and secretary of the Virginia Tuberculosis Association, will be secretary for the meeting.

Dr. and Mrs. Mark W. Peyser

Are again at their home in this city after touring for several weeks in the New England and other northern states.

Dr. Wm. C. Schroeder,

A member of the Medical Society of Virginia and a surgeon in the U. S. P. H. S. (Reserve), is Chief of the Tuberculosis Service at Ft. McHenry, Maryland.

Apropos the Rat.

In these days when the question of rat extermination is receiving so much attention as a plague preventive measure, it may be of interest to note its importance as an economic problem. According to authoritative estimates,

there is one rat for every one person in the United States. A bulletin of the U. S. Public Health Service states that to maintain its rat population, it costs the people of this country approximately one cent per person every day for rat food.

Dr. Grover B. Gill,

Formerly of Tangier, Va., but recently of Northumberland County, has located in Washington, D. C., with offices in the Medical Science Building. He is limiting his practice to diseases of the ear, nose and throat.

Dr. W. V. Atkins,

Blackstone, Va., was a recent visitor in Richmond.

Woman in Faculty of Medical College of Virginia.

Although the Medical College of Virginia, Richmond, opened its doors to women students last year, it is taking in its first woman professor for the 1920-21 session. Dr. Margaret Morris Hoskins, recently of the University of Minnesota, comes to the college this year as associate professor of anatomy, in charge of histology and embryology. Before his death, during the influenza epidemic, Dr. Hoskins' husband was also a member of the faculty of the University of Minnesota.

Dr. R. B. Gillespie,

Of Tazewell County, Va., is with the U. S. Public Health Service at Hospital No. 27, Alexandria, Louisiana.

Dr. C. W. Pritchett,

Of Danville, Va., spent some time in August in Richmond and at Virginia Beach.

Dr. Arthur S. Brinkley,

Of Richmond, announces the opening of his offices at 11 West Grace Street. He will limit his practice to surgery. Dr. Brinkley has recently returned to the city after attending the Mayo Clinics at Rochester, Minn., and also clinics in Cleveland and Chicago.

Hospital Planned for South Richmond.

There being no hospital on the south side of the river, citizens and physicians of South Richmond are discussing with much interest plans looking to the establishment of a 100-bed hospital in that section of this city. If plans now being considered mature, the hospital will cost about $400,000. Dr. John A. Hornsby, of Atlanta, an expert in hospital building and management, on August 27, addressed a meeting in South Richmond relative to the proposed hospital.

The building committee appointed to look further into plans for the establishment of the hospital are: Dr. J. G. Loving, chairman, and Drs. Thos. D. Jones, E. G. Hill, T. S. Shelton, Wm. H. Craig, S. J. Baker, and R. E. Mitchell.

Indigent Migratory Consumptive Problem.

A pamphlet recently issued by Dwight E. Breed, executive secretary of the Texas Public Health Association, gives a digest of his remarks made last fall at the Southwestern Tuberculosis Conference. In a community of approximately 16,000, in which the death rate from tuberculosis was excessive, a survey was made of the tuberculous people as to the state in which their disease was diagnosed, the length of time they have been in the present community, occupation, financial status, etc. The large number of tuberculous people in precarious financial condition warrants the belief that legislative action should be taken to prevent the indigent consumptive from migrating to other States.

A great deal of attention is also being given to this subject by other States in the western and southwestern section of the county. The wandering of this class from place to place in the search of health imposes an additional tax upon the communities in which they locate and the want of the actual necessities at times can but add to the suffering of these unfortunates.

Dr. G. D. Heath,

Of Middlebrook, Va., has gone to Clemson College, S. C.

Dr. D. Atwell Forrer,

Formerly of this State, is now located and practising in Griffin, Ga.

Dr. R. E. Fortune,

Of Damascus, Va., has been elected one of the councilmen of that place.

Married.

Dr. Custis Lee Hall and Miss Mary Bland Golden, both of Washington, D. C., August 10.

Dr. Linwood Hancock Justis, formerly of Roanoke, Va., and Miss Angelyn Eliza Alexander, Scotland Neck, N. C., August 27. They will make their home in Littleton, N. C.

Dr. Junius Ernest Warinner and Miss Helen Starke, both of this city, September 15.

Dr. V .M. Cox,

Formerly of Chilhowie, Va., after a post-graduate course in New York, has located in Bristol, Va. He will limit his practice to diseases of the eye, ear, nose and throat.

Dr. Thomas R. Marshall,

Of Ware Neck, Va., is still in the Medical Corps of the Army with the rank of Major and at present located at the Headquarters of the 57th Infantry, Camp Dix, New Jersey.

Dr. E. L. Kendig,

Of Victoria, Va., spent the month of August taking a post-graduate course in Chicago and in attending the Mayo Clinics at Rochester, Minn. Mrs. Kendig and E. L. Kendig, Jr., accompanied him.

Dr. Barton B. McCluer,

Formerly of this State, is now located at Eckman, W. Va. He has recently been on a visit to his parents at Bon Air, Va.

Dr. Wright Clarkson,

Mt. Solon, Va., is stationed at Hoff General Hospital, Fox Hills, Staten Island, New York, as a member of the Medical Corps of the Army.

"Gorgas Road".

According to the *Army and Navy Journal*, the governor of Canal Zone recently issued a circular designating the road formerly known as "Hospital Road" and leading from Ancon post-office through the grounds of Ancon Hospital to the top of the hill at the women's bachelor quarters, as "Gorgas Road", in honor of the late Maj.-Gen. Wm. C. Gorgas, whose labors in Canal Zone won for him great renown.

Dr. Nelson Mercer,

Formerly of this city before he entered the army in 1916, is now chief of the medical service at U. S. P. H. S. Hospital, Ft. McHenry, Baltimore, Md. This hospital is for the accommodation of patients from the Fourth District comprising the States of Virginia, West Virginia, Maryland, and the District of Columbia.

Dr. G. R. Cottingham

And family, of Remington, Va., have returned to their home after a visit to relatives in Ottoman, Va.

Radium Purchased by New York State.

The state of New York appropriated $225,000 for the purchase of radium to be used in the treatment of cancer. For this amount two and one quarter grams were secured and placed at the Institute for the Study of Malignant Disease, Buffalo. This was mined in Colorado. After October 15, "any citizen of the United States may avail himself gratuitously" of treatment. Preference, however, will be given to citizens of New York State.

The cost of radium makes its use in the majority of hospitals and research schools prohibitive, so that this appropriation by the State of New York is an important step forward in the treatment of cancer, especially, in view of the statement which has been made that cancer causes 90,000 deaths annually in the United States and that it increases 25 per cent every ten years.

Dr. Marshall L. Boyle,

Of this city, has recently returned home after a trip to Washington, Philadelphia and New York.

Dr. Sydney J. Baker,

Of South Richmond, who recently underwent an operation at a local hospital, was doing nicely when we went to press.

Vienna Physicians Destitute.

We are asked to bring to the attention of our readers not only the destitute condition of the Viennese as a whole, but also to stress the fact that the physicians of Vienna are in desperate straits. Their work must go on to combat the increasing mortality and alleviate suffering, but, with their meager incomes, they are unable to feed their own children.

The American Relief Committee for Sufferers in Austria, of which the Honorable Frederic C. Penfield, late American ambassador to Austria-Hungary is honorary chairman, has created a special fund for the relief of destitute Viennese physicians and surgeons. Contributions may be

made to Alvin W. Krech, President Equitable Trust Company, 37 Wall Street, New York City, treasurer of the committee.

Dr. J. M. Ropp,

Formerly of Shenandoah, Va., is now located in Roanoke, Va., after several months' post-graduate work in the North and West.

Dr. L. A. Robertson,

Of Danville, Va., was a recent visitor in Asheville, N. C.

Dr. W. A. Shepherd

Has returned to his home in this city after a short vacation spent with his family at their lodge in Bath County, Va.

Dr. and Mrs. Morton G. Douglas,

Warrenton, Va., recently returned from a motor trip in the North.

Dr. Basil E. Strode,

Richmond, announces the removal of his offices to 208 East Grace Street, this city.

The Ohio State Medical Association.

The House of Delegates of the Ohio State Medical Association, at its annual meeting, in Toledo, June 1-3, 1920, adopted the following resolutions:

"WHEREAS, in our forty-eight States there are as many separate medical examining boards, and

"WHEREAS, licensed physicians in one State may not always practice in other commonwealths without vexatious examinations and expense, and

"WHEREAS, the government in time of war frequently sent physicians into army camps in other States, and therefore disregarded State boundaries, and

"WHEREAS, there is practically homogeneity in the anatomical and psychological makeup of the people in the various States, and

"WHEREAS, the same may be said of the physicians throughout the land.

"THEREFORE, BE IT RESOLVED, that it is the opinion of the House of Delegates that the right to practice in one State should be extended to include the right to practice medicine in any part of the United States.

"BE IT FURTHER RESOLVED, that a copy of this resolution be sent to the proper officials of all medical societies, and to national and quasi-national medical associations, and that the American Medical Association be especially urged to perfect a plan by which interstate medical practice be made as easy as interstate commerce."

The National Anesthesia Research Society

Is to hold its annual meeting in Pittsburgh, Pa., October 4-8, with headquarters at the William Penn Hotel. This meeting will be held in conjunction with those of the Interstate Anesthetists Society, the Western Pennsylvania Odontological Society, and the Medical Society of the State of Pennsylvania. T. T. Frankenburg, 16 East Broad Street, Columbus, Ohio, is executive secretary.

Dr. and Mrs. H. S. MacLean,

Richmond, spent their vacation motoring through the Valley of Virginia, at which time they visited a number of interesting places.

Dr. Lawrence Ingram

Has returned to his home in Richmond, after spending some time with his family at Virginia Beach.

Dr. J. Judd Miller,

Norfolk, Va., spent his vacation early in August at Blue Ridge Summit, Pa.

Hospital to have Faculty of Doctors.

At a recent meeting of the directors of the Northampton-Accomac Memorial Hospital, a resolution was passed creating a faculty of doctors for the hospital. These will have charge professionally of the various departments. Members of the two county medical societies are to be invited to become members of the faculty. Drs. William Wilkins, Eastville, and John W. Kellam, Onley, who have retired from active practice, were elected members of the medical faculty.

Dr. and Mrs. Lowndes Peple,

Richmond, spent their summer vacation at Nimrod Hall, in Bath County, Virginia.

Dr. T. H. Valentine,

Vultare, N. C., has returned home after a visit with his family in Bedford County, Va.

Dr. Fitts in Danger Zone.

The location of Dr. F. Moylan Fitts, in Warsaw, where he has been serving with a typhus unit, has caused his friends and relatives much anxiety, because of the conflict between the Poles and Bolsheviki. Dr. Fitts is a resident of this city and a member of the class of '16, Medical College of Virginia.

Weekly Health Conferences.

From the August bulletins of the Portsmouth Health Department, we note that one hour con-

ferences, which have resulted in much good, are held weekly, all employees of the Health Department being required to attend. Definite programs are arranged and different members are designated to handle topics pertaining to their own work.

Dr. W. D. Kendig,

Kenbridge, Va., left the latter part of August for Chicago, where he will take a post-graduate course, going later to attend the Mayo Clinic, at Rochester, Minn. During Dr. Kendig's absence, his practice will be looked after by Dr. Robert Whitehead, of Amherst County, Virginia, who has recently been practising with Dr. Stuart Michaux, in Richmond.

Dr. Tom A. Williams,

Washington, D. C., is enjoying a vacation abroad. He attended the meeting of the Bristol (Eng.) Medical Association, soon after his arrival on the other side and, when we last heard from him, was in Basses-Pyrenees.

Dr. L. E. Walton,

Formerly of Rockingham County, Va., is now located at Low Moor, Va.

Dr. B. C. Keister,

Roanoke, Va., has gone to Americus, Ga., where he expects to have a modern winter home.

Dr. A. A. Burke

Returned to his home in Norfolk, Va., early in August, after a visit to Blue Ridge Summit, Pa.

Dr. Edward McGuire,

Richmond, returned home early in August after a visit to Hot Springs, Va.

Dr. and Mrs. Wm. H. Higgins,

Richmond, enjoyed a vacation at Nantucket, Mass., this summer.

Danville Doctors Enjoy Outing.

Drs. Julian Robinson, E. H. Miller, and Thos. W. Edmunds, of Danville, Va., enjoyed a short vacation in August at White Sulphur Springs, W. Va.

Dr. Stuart McGuire,

Richmond, who recently underwent an operahas been promoted to the rank of commander in the medical corps, and is at this time with the U. S. S. Arizona.

Record Day for Richmond.

For the fourth time since 1906, no deaths occurred in Richmond during the month of August.

Dr. Hunter McGuire,

Who underwent an operation at St. Mary's Hospital, Rochester, Minn., is getting along nicely, according to recent reports. Upon leaving the hospital, he expected to take a short vacation before returning to his work.

The Southern Medical Association

Is scheduled to meet in Louisville, Ky., November 15-18, under the presidency of Dr. E. H. Cary, Dallas, Tex. Dr. Seale Harris, of Birmingham, Ala., is secretary-editor, and Mr. C. P. Loranz, also of Birmingham, is business manager.

Civil Service Examinations.

The U. S. Civil Service Commission announces open competitive examinations for training officer at $2400-$3000; training assistant at $1500-$2400; placement officer at $2400-$3000; district medical officer at $1800-$3000; assistant medical officer, at $1800-$2750. On account of the needs of the service, applications will be received until further notice. Papers will be rated promptly and certification made as the needs of the service require. For detailed information, address the above named Commission, Washington, D. C.

Dr. W. G. Painter,

Big Stone Gap, Va., was a visitor in Richmond, last month, having come on professional business.

Dr. and Mrs. E. T. Gatewood,

Of Richmond, returned home the middle of August after a visit at Natural Bridge, Va.

Attend Atlanta Meeting.

Dr. Joseph M. Burke, chief surgeon of the Seaboard Air Line Railway, and his son, Dr. H. Aulick Burke, assistant chief surgeon, both of Petersburg, Va., in August attended the Railway Surgeons' Association of Georgia, in Atlanta. Dr. J. M. Burke was on the program for an address at this meeting.

Dr. W. O. Lee

And family, of Danville, Va., spent a short vacation during August in the mountains of North Carolina.

Dr. J. B. Mears,

Of Accomac County, Va., who has been in the medical corps of the U. S. Navy for some years.

curred in this city on one day in August, although the average number of deaths per day is seven. The four banner days are July 13, 1906; December 18, 1911; July 26, 1918; August 28, 1920.

Dr. and Mrs. S. E. Weymouth

Have recently returned to their home in Callao, Va., after a short trip to Washington, D. C.

Chalons to Have Million Franc Maternity Hospital.

Ground has recently been broken for the erection at Chalons, France, of a million franc model maternity hospital. It will be the most complete and modern institution of its sort in France and will take the place of the temporary dispensaries, hospital and babies' clinics which have been cared for by the American Red Cross. The undertaking is being financed by the Friends' Unit of the American Red Cross and English Quakers.

Attend Public Health Convention.

Drs. E. C. Levy, C. C. Hudson, W. A. Plecker, of this city, and P. S. Schenck, of Norfolk, were among those who attended the meeting of the American Public Health Association in San Francisco, this month.

Dr. H. W. Porter,

Louisa, Va., who was operated on at a Richmond hospital, returned to his home recently much improved.

Dr. Edward Sandidge,

Of Amherst, Va., was a recent visitor in Portsmouth, Va.

American College of Surgeons to Receive Gift from British Confreres.

A silver, gilt mace, four feet long, mounted with American eagles and Canadian maple leaves, has been made for presentation to the American College of Surgeons by consulting surgeons of the British armies "in memory of mutual work and good-fellowship in the great war." Sir Berkeley Moynihan proposed the making of the mace and Sir Anthony Bowlby and Sir D'Arcy Power were prominent in carrying out the plan. The names of fifty-four donors are to be inscribed on the mace.

Accidents More Fatal Than War.

The Health and Accident Underwriters' Association, in recent session, stated that accidents were more fatal than war. Over 11,000,000 persons are injured and 105,000 are killed by accidents every year. During the war, 31,000 Americans were killed in battle, whereas at home, 126,000 Americans died of accidents during the same period.

Junior Partner Wanted,

By a busy surgeon and general practitioner who has too much work to do. Nothing to sell. Needs a good man to help with both hospital and outside work. Location, a flourishing railroad town and splendid surrounding country; the best in the State. Either single or married man, but one who has had as much as one year of hospital training, and a year or two of general practice would be preferred. Address A. B., care this journal. (Adv.)

For Sale,

Best location in southwest Virginia for village and country practice. Twelve-room residence, acetylene lights, garage, out-buildings, and about two acres of land. Price, $18,000 with terms. For further particulars, address "Location", care this journal. (Adv.)

Medical Books for Sale.

Below is given a list of medical books for sale. For further information, write Mrs. Frank Woolfolk, Louisa, Va.

Infancy and Childhood, Holt, 1898;
National Medical Dictionary;
Medical Gynecology, Skein, 1895;
Diseases of Women, Skein, 1890;
Practice of Medicine, Osler, 1897;
Diseases of Women, Bleck, 1906;
Gynecology, Bratenahl & Tousey, 1892;
Parrish's Treatise on Pharmacy, Wiegand, 1884;
Marshall's Outlines of Physiology, Smith, 1868;
Practice of Surgery, Bryant, 1885;
Skin Diseases, Fox, 1877;
Practical Obstetrics, Grandin & Jarman, 1897;
Anatomy, Gray, 1870;
National Medical Dictionary, Vols. 1 and 2, Billings, 1890;
Principles and Practice of Medicine, Flint, 1873;
Modern Treatment and Medical Formulary, Campbell, 1910;
Obstetrics, King, 1892;
Practice of Medicine, Dabney;
Examination of Urine, Tyson, 1886.

Wanted—An additional assistant resident physician at Catawba Sanatorium. Please send applications to Dr. B. L. Taliaferro, Resident Physician, Catawba Sanatorium, Va. (Adv.)

Wanted—An assistant to do general practice. Good salary; house with modern conveniences; good churches and schools. Address, Dr. B. Ryland Hudnall, Low Moor, Va. (Adv.)

Obituary Record.

Dr. Lewis Crenshaw Bosher,

One of the best known surgeons in this State and most prominent citizen of Richmond, died suddenly at his home, on the evening of September 12. His death was due to a heart lesion. For the past few years he had suffered from both heart and rheumatic troubles. Dr. Bosher was born in this city February 17, 1860. Upon completing his elementary education, he attended Richmond College from which he took his A. B. degree. He then entered the Medical College of Virginia, from which he graduated in 1883. After a year's internship at the City Hospital, he went to New York City and served in Mt. Sinai and Bellevue Hospitals. Returning to Richmond, he took up the practice of his profession here and almost immediately became connected with the Medical College of Virginia. He was at first professor of anatomy, then of the principles of surgery and, later, full professor of surgery. Upon the amalgamation of the two Richmond medical schools, he was put in charge of the chair of genito-urinary surgery, in which field he specialized. At the time of his death he was emeritus professor of this branch.

Dr. Bosher was a man of sterling qualities, beloved alike as teacher and physician. He was a member of various national and local medical societies and an ex-president of the Southern Surgical Association, the Richmond Academy of Medicine and Surgery, the Richmond Surgical Society, and an ex-vice-president of the Medical Society of Virginia. Through his work in and for the hospitals of Richmond, he did much for the development of the city. He took a leading part in the organization of Stuart Circle Hospital and, upon its opening in July, 1913, was chosen its president.

In his death, Richmond has sustained a great loss and his passing will be keenly felt by friends without number throughout this and other States, for, during his connection with the medical colleges, he greatly endeared himself to the students who are now scattered throughout the country.

Dr. Bosher was unmarried but is survived by one brother and two sisters.

Dr. Henry William Harrison

Died at his home, in Roanoke, Va., September 1, and was buried in the cemetery at University, Va. He was seventy-five years of age and a son of the late distinguished Professor Gessner Harrison, of the University of Virginia. As a mere lad, he entered the service of the Confederacy and served throughout the war. He took up pharmacy for a time after this but later decided to study medicine and graduated from the Medical College of Virginia in 1882 and from the College of Physicians and Surgeons, Columbia University, New York, in 1884. After an internship in a New York hospital, he returned to Virginia and located in Roanoke in 1887 where he had since lived and practised his profession. He was unmarried, but is survived by three brothers, one of them Dr. George Tucker Harrison, of University.

Dr. Aristides Smith Harrison

Died at his home in Enfield, N. C., August 19, at the age of 56 years. His wife, two children and two brothers survive him. Dr. Harrison was a graduate of the University of Maryland, School of Medicine in 1888 and made a specialty of diseases of the eye, ear, nose and throat.

Dr. George Gillette Thomas,

For a number of years superintendent and chief surgeon of the relief department of the Atlantic Coast Line Railroad, died at his home in Wilmington, N. C., September 5, after a long illness. He was seventy-seven years of age and graduated in medicine from the University of Maryland, Baltimore, in 1871.

Dr. Darsey L. Coffindaffer,

Of Shinnston, W. Va., was killed in a grade crossing accident at Fairmont, W. Va., July 21. He was thirty-eight years of age and a graduate from the Medical College of Virginia, Richmond, in 1909.

Dr. J. Edward Cox,

Died in Stanaford, W. Va., August 23, at the age of fifty-one years. The interment was made in Goochland County, Va. Dr. Cox was a graduate of the Medical College of Virginia in 1895.

Dr. Thomas B. Luxford,

Formerly of this city, died at his home in Princess Anne County, Va., September 8, after a short illness with heart trouble. He had lived and practised his profession in Princess Anne about fifteen years, and had been a member of the Medical Society of Virginia for a number of years. Dr. Luxford was about fifty years of age and graduated from the Medical College of Virginia in 1895. He is survived by his widow and two children.

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Original Communications

THE IMPORTANCE OF THE MUSCULO-FASCIAL PLANE IN THE RECTO-VAGINAL SEPTUM.*

By J. W. HENSON, M. D., F. A. C. S., Richmond, Va.
Associate Professor of Surgery, Medical College of Virginia; Surgeon to Memorial and Virginia Hospitals.

Physicians and surgeons of necessity have developed much patience. Nevertheless, there is so much literature on the anatomy and pathology of the structures concerned in the loss of support of the pelvic viscera in the female and on the question of the surgical procedures indicated to correct the results of the pathology, that one hesitates to write on a subject so much used and at times abused, fearing he may exhaust the much tried patience of hearers or readers. The writer's apology for reviving this subject is the possession of very strong convictions based on observations that were made possible by having been at one time a teacher of anatomy and by reason of having had the opportunity to make 3,000 or more pelvic examinations.

Some discussion of the anatomy and physiology of the structures concerned in the support of the uterus and bladder is essential to a clear conception of the etiology of ptosis of these organs and the means to be used for its relief, particularly as the object of this paper is to emphasize the importance of certain structures that are apparently being either ignored or little understood.

The pelvic fascia, a continuation of the iliac fascia, descends along the lateral wall of the true pelvis and splits along the course of a line drawn from the back of the pubis around the pelvic wall to the spine of the ischium.

The levator ani muscle arises from the back of the pubis and from the angle of division of the pelvic fascia and from the spine of the ischium. Note that confusion arises when the insertion of this muscle is considered. Most of the books on anatomy differ, and some differ widely in their description of the insertion, which argues strongly that dissections are not reliable in the case of a muscle which is as thin at its insertion as is this one and which blends with so many other structures.

The action of such a muscle is a better indication of its attachments. Gray's Anatomy describes the insertion of the muscle as follows, "the anterior fibres are inserted into the central tendon of the perineum after passing across the lateral aspect of the lower end of the vagina, the middle fibres pass along the anal portion of the rectum and are inserted into the anus, the posterior fibres are inserted into the tip of the coccyx and the median fibrous raphe from the coccyx to the rectum."

Campbell's Surgical Anatomy, while giving practically the same insertion for the middle and posterior fibres as given by Gray, differs very materially from the latter in the description of the insertion of the anterior fibres.

According to Campbell (and Deaver), the anterior fibres of the levator ani pass across the side of the lower end of the vagina and, turning inward, join with the fibres of the opposite muscle between the vagina and rectum. While this is nearer the truth than the description of Gray, I am convinced it is incomplete, to say the least, as I shall try to prove further on in this paper. The inner division of the pelvic fascia, called the levator ani fascia, covers the upper surface of the levator ani muscle, is continuous posteriorly with the thin fascia coming down over the sacrum and the coccygeus muscle and mesially passes between the rectum and vagina, also giving off a process or plane which passes over the vagina to the base and neck of the bladder.

The levatores ani and coccygei muscles with the layers of fascia above and below them (the anal fascia, a thin reflection from the pelvic fascia, lies below them) constitute the true pel-

* Read before the surgical section of the Medical Society of Virginia at its meeting October 28th to 31st, 1919.

vic diaphragm, the defect in this diaphragm in front between the levatores ani muscles being partially closed by the triangular ligament and the transversus perinei muscles. This set of muscles and fasciae is called by Halban and Tandler the "supporting apparatus."

Above the pelvic diaphragm and beneath the pelvic peritoneum, besides ordinary sub-peritoneal connective tissue, there are bands and sheets of fibrous tissue which, whether considered as condensed sub-peritoneal connective tissue or extensions of the pelvic fascia, are nevertheless ligaments. The most important of these are the pubo-cervical ligaments and the fascia between them, extending from the pubes backward beneath the base of the bladder to the cervix, the cardinal ligaments from the cervix to the lateral pelvic wall and the utero-sacral ligaments. This set of structures is called by E. Martin the "holding apparatus." Further description of these and the other ligaments of the uterus is not required in this paper because there have been in the last few years many papers in the leading journals portraying them very elaborately and emphasizing their importance as supports of the uterus and bladder. I have no quarrel with statements that they are very important supports for these viscera. I do take issue, however, with the view that they are the only essential supports.

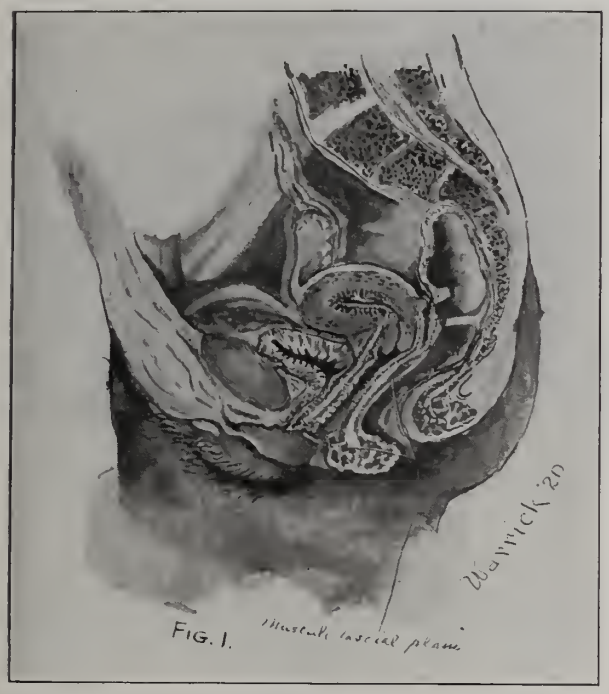
Many surgeons, who pay no attention to the fascia in the operation for inguinal hernia and give every attention to the muscles, reverse that procedure entirely in dealing with ptosis of the female pelvic viscera, believing that, in correcting the tears or relaxations in the ligamentous or fascial supports, they have done all that is necessary. This is not in accordance with nature's provision. In every part of the body where support is needed, you will find this support provided by connective tissue, backed by muscles either directly or indirectly. The joints are all supported by muscles or tendons in addition to the ligaments. But for a tendon and aponeurotic expansions from muscles, that great joint, the knee, would be almost without support in front and at the anterior part of each lateral aspect. Any attempt to dislodge the head of the humerus from the glenoid cavity under normal conditions is met with resistance that can only be overcome by great force. But, in injury to the brachial plexus involving the nerve supply to all the muscles crossing the shoulder joint, the head of the humerus falls downward and, as time goes on, if the paralysis continues, it falls lower and lower, the ligaments stretching.

The long bones are not only enabled by the muscles to maintain the body erect but, as a matter of fact, the muscles surrounding a bone, when in a state of tension, actually reinforce its strength. Would the broad, coronary, and lateral ligaments, which are merely peritoneal reflections, be sufficient to hold the liver in position without the intra-abdominal tension? Would the gastro-hepatic omentum hold the stomach in position indefinitely without the intra-abdominal tension? What is chiefly responsible for intra-abdominal tension? The muscles. You can find men of twenty-five or thirty years of age who have sat at desks for ten years or more and who are pot-bellied, their intestines, small and large, being collected into a bulging mass at the lower abdomen. This is not due to a relaxation of fascia so much as relaxation of abdominal muscles. Put these men in military training and in a few months the front of the abdomen will be straight and firm and the intestines in place, a matter of muscular development and support, which has restored the intra-abdominal tension.

There is also an intra-pelvic tension,—the pressure from above being neutralized by the tonic contraction of the muscular part of the pelvic diaphragm. Furthermore, an unusual pressure coming from above on account of some extra contraction of the abdominal muscles is neutralized by active contraction of the muscular part of the pelvic diaphragm.

While I think Campbell is nearer correct in his description of the insertion of the anterior fibres of the levator ani muscle than any anatomist I know of, I believe the truth is that the anterior fibres of this muscle are inserted, a few into the central tendon of the perineum, and most of them into the recto-vaginal reflection of the pelvic fascia (continuation of the levator ani fascia), this insertion extending from the base of the triangular ligament up along the recto-vaginal fascia as far as two inches or more, thus forming a musculo-fascial plane in the recto-vaginal septum. This arrangement has an analogy in the tensor vagina femoris, which lies under the fascia lata and yet is attached to this fascia. It is easy to demonstrate the attachment and action of the anterior part of the levator ani muscle in the living, normal, nulliparous woman. Introdu-

cing the finger into the vagina (woman erect), you will find that the course of the posterior vaginal wall, for two inches or more, is upward and backward, approximately at an angle of 45° with the midline of the body and then curves backward, sometimes slightly upward, and finally positively upward to reach its attachment to the cervix uteri. For the first two inches or more, the posterior vaginal wall is firm and holds the finger snug up against the base of the bladder. If you press against the posterior wall here, you will find resistance. If you continue the pressure, the tissues will give to a certain limit. After pressing beyond a certain limit, you will feel your finger forced back against the base of the bladder. This can only be done by muscular contraction. Beyond the point at which the posterior vaginal wall curves backward, the tissues are not firm but loose and relaxed. The recto-vaginal fascia here is thin and unsupported by muscle.



A tear of the perineum, even if it goes to the sphincter ani, provided it does not go over three-fourths of an inch up the posterior vaginal wall, does not destroy the muscular support to the pelvic viscera. Let us by all means stop paying so much homage to the perineum and pay more attention to the integrity of the musculo-fascial plane in the recto-vaginal septum.

A glance at figure 1 will show that the bladder is supported not only by the fascia and ligaments under its base but by the musculo-fascial plane in the recto-vaginal septum. The

A nullipara. Perineum and recto-vaginal septum very much relaxed, as shown by the two examining fingers when introduced full length and pressed backward, making a wide space below the bladder.

Same woman as in Figure 2-A. The two examining fingers have depressed the posterior vaginal wall and anterior rectal wall so far backward that the ends of the fingers make a bulge at the anus.

A multipara. Relaxation of perineum and lower end of recto-vaginal septum, the back part of the latter being still firm, as shown by the fact that, in pushing backward the two examining fingers, there is a wide gap between the fingers and the bladder in front, while, further back, the posterior vaginal wall can be seen still hugging the bladder.

Same woman as in Figure 3-A. In attempt to push the vagina and rectum backward to the limit shown in Figure 2-B, the fingers have slipped forward over the vaginal floor and are shown caught behind the perineum.

fundus and greater part of the body of the uterus, by resting against the bladder, receive the same support in addition to its own ligaments. The lower part of the uterus rests, in stress, on the upper part of the musculo-fascial plane of the recto-vaginal septum. It is true that the fibres of the levator ani, which are attached to and behind the rectum, by lifting this viscus, help to support the other pelvic viscera but, when the attachment of the anterior fibres of this muscle are torn or relaxed to the upper limit of their attachment, the muscular part of the pelvic diaphragm is so crippled that it cannot maintain the intrapelvic tension. When this support is gone, the direct fascial supports of the bladder and uterus will gradually stretch under the constant unrelieved strain.

Surgeons, arguing against the value of the support from the levatores ani muscles, say there are cases of prolapse of the uterus and bladder in nulliparous women. True enough. Show me such a case and I will show you that the musculo-fascial plane in the recto-vaginal septum is relaxed. For example, figures 2a and 2b illustrate a nulliparous woman in whom you can see that the musculo-fascial plane is relaxed more than that of the multiparous woman shown in figures 3a and 3b. The nulliparous woman (figures 2a and 2b) has also retroversion and prolapse of the uterus and some

A unipara. Perineum has been torn, the extent of the tear up the recto-vaginal septum being about 3/4 of an inch. Two examining fingers were introduced full length into the vagina and pressed firmly backward. Result, as shown in the cut, the musculo-fascial plane held the fingers firmly against the base of the bladder.

cystocele. The woman shown in figure 4 has borne a child, has a torn perineum, the tear going up the vagina about three-quarters of an inch, and yet the rest of the recto-vaginal septum is intact, doing its work, and there is no descent of the bladder or uterus.

The writer wishes no one to accept his views regarding the anatomy and physiology of the pelvic diaphragm without testing the soundness of these views by the method described above and illustrated in figures 2a, 2b, 3a, 3b, and 4.

In cases of cystocele or ptosis of the uterus, the appropriate plastic work should be done on the fascial supports of these viscera, of course, but such work should be supplemented by restoring the integrity of the musculofascial plane in the recto-vaginal septum, otherwise one need not expect permanent results.

Technique of the Operation.

The preceding discussion regarding the anterior fibres of the levator ani muscle and the recto-vaginal fascia (continuation of the levator ani fascia), practically indicates the technique. However, there are a few points that should be emphasized.

After exposing the parts by a perineal retractor, make a U-shaped incision at the mucocutaneous border, from caruncle to caruncle (figure 5); dissect the mucous membrane of the posterior vaginal wall at least two inches upward and free it well laterally in order that the stitches can be so introduced as to bring about restoration of the proper tension of the recto-vaginal fascia and levatores ani muscles.

The recto-vaginal fascia is rather loosely attached to the rectal wall and rather closely attached to the vaginal wall, so scissors should not be used in making the dissection, by pushing the instrument between layers of tissue and opening the blades, as the looser line of cleavage will more likely be found and followed and throw the recto-vaginal fascia forward with the flap and out of the way for stitching. Furthermore, there is a plexus of veins between the recto-vaginal fascia and the rectum which causes troublesome bleeding when the dissection is made here. Use a sharp knife and keep between the mucous membrane of the vagina and the recto-vaginal fascia (figure 6) and, after completion of the flap raising, a row of 20-day chromic cat gut sutures is introduced, taking a good bite well out on each side as illustrated in figure 7, catching the recto-vaginal fascia, not necessarily the levator ani,

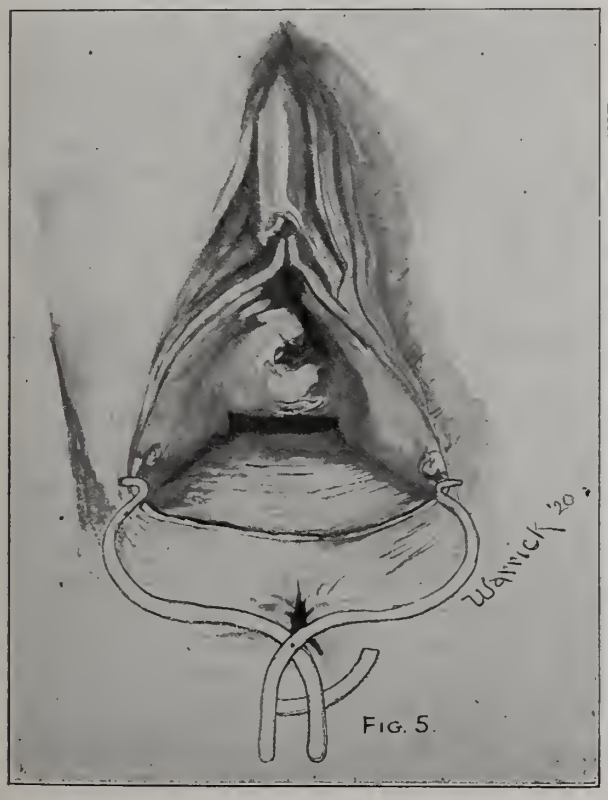


Fig. 5.

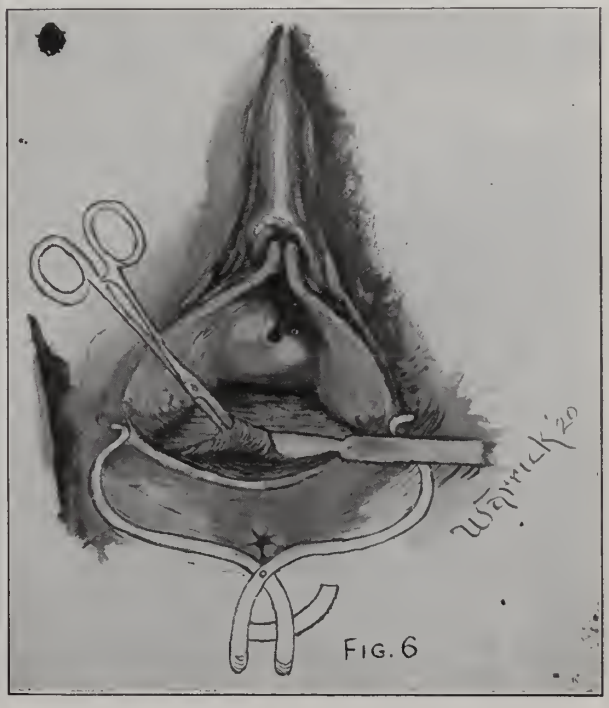
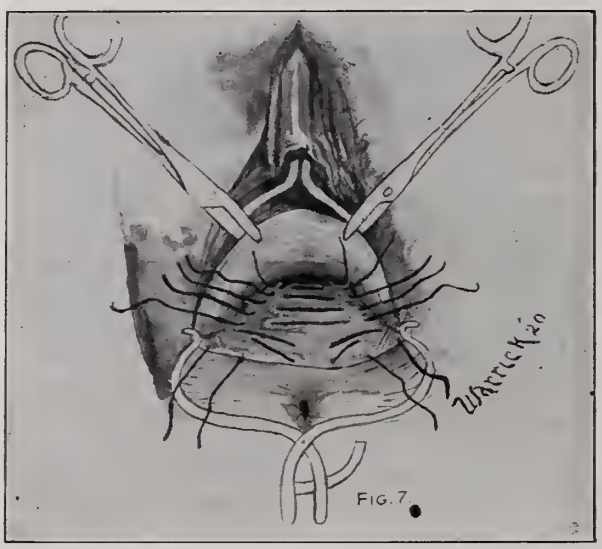


Fig. 6

since the latter is continuous with or attached to the former.

In tying the sutures, the recto-vaginal fascia, if torn, is brought together and, if stretched but not torn, it is folded upon itself and strengthened. At the perineum proper (figure 7), two or more sutures of chromic gut or silk-



worm gut are introduced close to but not through the edge of the skin, catching the end of the transversus perinei muscle and the lower edge of the levator ani muscle, and brought out after one-fourth inch bite, then re-introduced, taking a one-fourth or one-half inch bite across the middle line in front of the anus, brought

out and again re-introduced, taking the same bite in the opposite transversus perinei muscle and lower edge of the levator ani, and coming out at the skin margin.

When all these sutures are tied, the musculo-fascial plane of the recto-vaginal septum is restored as well as the perineum. Note how thoroughly the perineum is restored (figure 8), the last two sutures catching, as they do, the lower edge of the levator ani and the transversus perinei on each side and taking a good bite of tissue at the center of the perineum in front of the anus, when tied, pull the muscles inward and the anus forward, thus correcting the backward drop of the anus and preventing the long distance usually seen between anus and vagina after perineorrhaphy. However, restoration of the perineum is of less importance than restoration of the musculo-fascial plane in the recto-vaginal septum.

The vaginal flap, if too voluminous, can be treated by cutting a wedge-shaped piece out of it at one side, so that, when the edges left by removal of the wedge are stitched together, the line of sutures will be laterally placed and not over the line of sutures in fascia and muscle. Usually the flap can be dropped down on its original bed. There will be folds, of course, but the flap is seldom so full as to require the removal of a wedge.

In either case, the lower margin of the flap, after a little trimming, should be stitched to the skin margin with a few cat gut sutures. It is best to use only three or four sutures, thus leaving pretty good intervals for drainage; otherwise, a hematoma might form under the flap, encouraging infection.

405 *Allen Avenue.*

INTUSSUSCEPTION—THE IMPORTANCE OF AN EARLY DIAGNOSIS.

By WILLIAM P. McDOWELL, M. D., Norfolk, Va.

There is no condition encountered by the physician in his practice among infants and children in which the importance of an early diagnosis is more urgent or imperative than it is in intussusception, for upon its early recognition depends the life and future welfare of the little patients. Most text books describe the condition as of an infrequent occurrence but, from personal observation, the author has found that its frequency is of sufficient importance to be always kept in mind whenever

considering the differential diagnosis of intra-abdominal maladies.

The pathology of intussusception consists of an invagination of one part of the intestines into another part. This may occur anywhere along the tract, from the duodenum to the rectum, and while it usually takes place from the above downward, the reverse condition may be encountered. As the invagination takes place the mesentery is drawn in with the bowel and is sandwiched in between the two layers of gut. Traction upon the mesentery leads to the obstruction of its blood supply there by producing congestion, œdema, hæmorrhage, or even gangrene. On account of the swelling thus produced, strangulation or obstruction results. The amount of gut involved in the strangulation may vary from a few inches to as much as eight or ten inches.

According to the location, various types have been described; thus we have the "enteric," "colic" and "ileo-cecal." This latter variety is the most frequent, furnishing almost 85% of the cases coming to the operating table or found at autopsy. In the ileo-cecal type the ileum passes from above downward into the cecum, pushing the ileo-cecal valve forward to form the apex of the intussusception. There is no age in which the condition does not occur, but it is more especially a disease of early life. Infancy shows the greatest susceptibility with the largest number of cases occurring between the fourth and ninth months, furnishing at this period the most frequent cause of acute intestinal obstruction. While it may be met with in older children or adult life, it is usually as a complication of some other abdominal condition. It is the condition met with in infancy to which I wish especially to call attention.

As to the etiology of intussusception, nothing definite is known. Various causes have been suggested, but they seem to be only problematic and up to the present time the cause still remains in the realms of obscurity.

The various forms of enteritis, diarrhea, enlarged mesentery glands, abdominal tumors, polyp, diverticulae, improper food, traumatism and exposure to cold, have all been mentioned as exciting causes, while typhoid fever and pertussis have been complicated or followed by the condition. It is not at all unusual for the mother, in giving a history as to date of onset, to state that the illness followed soon after a fall or some other slight traumatism. The author has seen intussusception occur several times in the course of an infectious diarrhea, and on one occasion saw it associated with a large sarcoma of the left kidney. However, in the majority of cases the patients have been well nourished, breast fed infants, who gave no history of previous illness or intestinal derangements. Statistics show that males are more frequently afflicted. No explanation has been offered for this fact and it is of no diagnostic importance.

Holt attributes the greater frequency of the disease among infants to the thinness of the intestinal walls, the greater mobility of the caecum and ascending colon, due to the increased length of the mesentery, and to the presence of other intestinal derangements at this age.

Nothnagle has shown by his experiments on animals with the electric current that intussusception could be produced by irregular contractions of the intestinal walls. In view of his experiments, it seems more than probable that irregular muscular contractions, produced by whatsoever cause, might also play an important part in the production of similar conditions in the intestinal tracts of infants.

The clinical picture is so striking, that when once observed, it will hardly ever be overlooked. The onset as a rule is sudden, usually ushered in with vomiting, acute abdominal pain, bloody stools and prostration. The pain is paroxysmal, colicky and severe in character, coming on in many instances while the infant is nursing at the breast or during a sound sleep. These paroxysms occur at frequent or long intervals, each paroxysm being announced by a sharp, piercing cry, whereas during the interval the patient may appear quite comfortable, even falling off into a peaceful sleep from which it is soon aroused by return of the pain. The frequency and character of the vomiting varies in pretically all cases; while it usually occurs early and is persistent, it may be present only once or twice during an entire attack. At first the vomitus is composed principally of the contents of the stomach, usually undigested food, but after the condition has existed for a variable length of time and the stomach has been emptied, each act of emesis is accompanied by much retching, and the vomitus consists of a small amount of mucus and gastric secretion. Stercoraceous

vomiting is a late symptom and does not occur until the obstruction has existed for several days and the strangulation has become complete, thereby causing a reverse peristalsis. The character of the stools is most important. At first they may appear perfectly normal but soon the fecal character is lost, blood and mucus becoming the predominating feature. With each paroxysm of pain a small stool may be passed; this is usually accompanied by tenesmus. In some cases the amount of blood is profuse. I recall a case seen in consultation in which the blood was so profuse as to saturate the clothing of the patient, resembling very much a hæmorrhage sometimes seen occurring in a case of typhoid fever. While in the majority of cases the blood and mucus appear in the stool early, there are incidences in which these symptoms may be a later manifestation, not appearing until twenty-four to thirty-six hours after the onset. Rarely constipation may occur in the beginning of an attack.

Shock is usually present from the onset. Manifested at first by slight pallor, with the advance of the invagination the patient rapidly passes into a state of prostration or even collapse with marked pallor, sighing respiration, cold, clammy extremities, with rapid feeble pulse. With the return of each paroxysm these symptoms become more pronounced and the facies of the patient shows every indication of extreme suffering.

No diagnostic importance can be attached to the temperature; it may be normal, subnormal, or elevated. As a rule, elevation does not occur until after the condition has existed for a number of days and the inflammatory process has become extensive.

It is possible in practically all cases, at some stage of the disease, to demonstrate an abdominal tumor and, when associated with the other clinical symptoms, it may be regarded as absolutely pathognomonic. The absence of a tumor, however, should not deter one in making a diagnosis for, if the intussusception be located in the hepatic or splenic flexures, the tumor may be easily overlooked. Its location depends upon the time that has elapsed since the onset. In the early stage it may be found laying on the right side, high up in the hepatic flexures, underneath the margin of the liver, in which position it may be difficult to be felt. As the invagination progresses along the line of the transverse colon, the tumor will be found on the left side and, if the examination be made from twenty-four to thirty-six hours after the onset, in the majority of cases it will be found low down in the rectum. Statistics show that in the largest number of cases the tumor is found in this location.

Not infrequently the tumor may protrude from the anus, giving the impression of a prolapsed rectum or a hæmorrhoidal mass. In a series of one hundred and eighty-eight cases reported by Holt, this occurred twenty-two times. Its character may be described as a freely movable, elongated mass, somewhat curved or crescent-shaped, varying in size from a few inches in length to a mass which entirely fills the iliac fossae. To the touch it has a characteristic "boggy" feel but, if stimulated by any manipulation, or even during a paroxysm of pain, it may become more prominent or even distinctly erectile. Only recently this fact was called to my attention by a mother of one of my patients who, before my arrival, had discovered a mass in the child's abdomen and had noticed that it became more prominent during the period of pain. Little difficulty is encountered in making a satisfactory examination of the abdomen in the early stage of the disease, for at this time the muscular walls are relaxed and offer little resistance. After the strangulation has existed for several days and the inflammatory condition has progressed to such an extent that peritonitis has become established, muscular spasm and tenderness may be so great as to preclude any manipulation. Under these conditions one is entirely justifiable in administering an anæsthetic to complete the examination.

In palpating for a tumor, a rectal examination should always be made and, in this connection, I wish to emphasize the importance of a routine rectal examination as a diagnostic aid in every abdominal condition. By this procedure it may be possible to demonstrate a tumor whereas an external examination has failed to reveal its pressure. By patience and gentleness, it is possible to make a very satisfactory rectal examination even in the youngest infant.

Langley Porter describes a condition which he considered a most important contribution to the diagnosis, and that is a feeling of emptiness that meets the hand palpating over the right iliac fossae. This sensation of emptiness

he attributes to the absence of the caput coli from its normal place and, in cases where the tumor is small or hidden under the liver, he believes the condition, when considered in conjunction with the picture of abdominal shock and bloody stools, to be absolute diagnostic.

From the standpoint of a differential diagnosis there are only a few conditions with which intussusception is apt to be confused. Those cases in which the onset is sudden with vomiting, recurrent paroxysmal pain, bloody stools, abdominal tumor associated with more or less shock, rarely present any diagnostic difficulties.

The most frequent mistake is to confuse intussusception with infectious diarrhea. It is however not difficult to differentiate between these two conditions. Intussusception begins acutely with pain in the abdomen and evidence of shock, the stools of mucus and blood not appearing until later, whereas the onset of infectious diarrhea is less acute, often being preceded for several days with other gastro-intestinal disturbances; the pain is usually not present or, if so, it is slight, and there are no symptoms of shock, while the mucus and blood may appear in the stools almost at once. Fever is common to both, but is higher in infectious diarrhea. The presence of an abdominal tumor will clear the diagnosis, tumors being absent in infectious diarrhea. It must not be overlooked, however, that intussusception may occur in the course of an infectious diarrhea, in which event a tumor is usually present.

As soon as the diagnosis of intussusception has been made, regardless of the stage of the disease, the condition immediately becomes a surgical problem and, as soon as this fact is more fully appreciated and the case placed in the hands of a competent surgeon, just so soon will the mortality from this condition be reduced. In no other disease does delay result in more serious consequences. Various mechanical methods at reduction have been suggested. Hydrostatic pressure, inflation of the gut with air or gas under pressure, oil enemata, external manipulation under anæsthetic, have all been tried with more or less success, but they are mentioned here only to be condemned, for they are uncertain as to results and may be the cause of unwarranted delay.

Laparotomy in the hands of a competent surgeon is a simple and safe procedure. When resorted to early in a case of intussusception it is usually an easy matter to bring the tangled gut into the field of vision and reduce the invagination, thereby relieving the obstruction. This should always be done early, for statistics show that, while the average mortality is about 50%, those cases which are operated on in the first twenty-four hours give a mortality rate of less than 10%.

In conclusion, I wish to make a plea for the infant who is taken suddenly ill with paroxysmal abdominal pain, vomiting and constipation, and to urge upon you not to administer a purgative until you have thoroughly satisfied yourself that you are not dealing with an intestinal obstruction.

Case 1. Ollie May. Female, white, age 9 months. The first and only child of healthy parents. Was born at term after normal labor. Her birth weight was not taken, but she was said to have been a well developed, fat infant. She had been breast fed entirely and had never been sick.

Seen in consultation April 6th, 1919. She was taken suddenly ill three days previously with vomiting and paroxysms of crying, during which attacks she would flex her legs up on her abdomen as if in acute pain. The paroxysms recurred at various intervals and with each attack she would become quite pale. Two hours after the onset she passed a large stool, consisting principally of mucus and blood, and a small amount of fecal matter. The paroxysms continued throughout the day and night and she refused to nurse. She was seen the next day by her local physician who prescribed calomel powders. This purgative was followed by a number of bloody, mucous stools. On this day the mother states that she felt a "lump" in the baby's abdomen which she had never noticed before. The vomiting and bloody stools had continued until the child was admitted to the hospital.

Examination showed a well developed, slightly emaciated infant, in an extreme degree of shock, with marked pallor, drawn and anxious facies, cold extremities and sighing respiration. Temperature 102, pulse 150, of poor volume but regular. Mouth was dry and tongue was covered with a dry brown coat. Chest was negative. The abdomen was full, slightly tender but not distended. On the left side was felt a smooth, firm, non-tender, round mass about the size of an orange, which extended down to the crest of the ilium. During

bimanual examination, with one finger in the rectum, this mass could be easily palpated. This examination produced an attack of vomiting and, on withdrawing the finger from the rectum, there was expelled about a tea-cup full of bloody mucus.

From the clinical symptoms a diagnosis of intussusception was made, though the mass was out of keeping with the tumor usually found in this condition. An immediate operation was advised and consented to. The operation was performed by Dr. Charles Doughtie. On opening the abdomen, the large mass was found to be situated extra-peritoneal. On further examination of the abdominal cavity another elongated mass, about 7 or 8 inches in length, was felt and when brought into view was found to be an invagination of the ileocaecal variety. This was easily reduced and the abdomen closed and no further attempt made to investigate the other mass.

The patient left the operating table in fairly good shape and made a good recovery. Eight weeks later a secondary operation was made to determine the nature of the remaining tumor. On opening the abdomen the mass was found firmly attached to the left kidney. A nephrectomy was done and a histological examination showed the mass to be a round cell sarcoma. On November 15th, the patient was again admitted to the hospital suffering an extreme degree of shock, due to an acute intestinal obstruction. The abdomen was again opened by Dr. Doughtie and the obstruction found to be due to a large number of adhesive bands, associated with a return of the sarcomatous growth. The patient left the table in practically a moribund state and died about two hours later.

Case 2. Baby A. Male, white, 5 months. The first and only child of healthy parents. Was born at term after normal labor and weighed 9 lbs., 8 oz. Had always been breast fed and had never been sick. Was seen in consultation on November 24th, 1918.

He was taken sick five days previously with acute abdominal pain, nausea, and vomiting. Mother gave a mild purgative, from which he had two or three normal stools; afterwards seemed better. For the next two days he had no vomiting, nursed well, played with toys and seemed all right. The following day there was return of the trouble; he was nauseated, vomited and had paroxysms of crying, drawing his legs up on his abdomen as if in pain. These paroxysms recurred at intervals all during the night. At each attack mother noticed that the patient became quite pale. About two hours before he was seen in consultation he had a large bloody stool. The amount of blood was profuse, following which the patient was much prostrated.

Examination showed a large, fat, male infant, listless and pale. Surface of the skin was cold and clammy. Pulse 140, of small volume. Temperature 99-2/5, respiration 20. The eyes were clear and pupils reacted to L. & A. Ears, mouth and throat negative. Chest negative. Abdomen full, though soft. In the epigastric region, along the line of the transverse colon, extending well over to the left side, could be felt an elongated, firm, smooth, movable mass. There was slight tenderness and any manipulation of the mass produced nausea. A diagnosis of intussusception was made and immediate operation advised. The patient was removed to the Protestant Hospital and operated on one hour later by Dr. Ruffin. On opening the abdomen the tumor was found to be an invagination of the ileum into the colon, involving about 8 or 10 inches of gut. No trouble was encountered in reducing the invagination, and the patient made a good recovery.

Case 3. Baby T. Female, white, age 6 months. First and only child of healthy parents. Was born at term, after normal labor and weighed 7 lbs., 8 oz. She had been fed on modified cow's milk since birth. Was convalescing from a three weeks' attack of infectious diarrhea, during which attack she had been having from 10 to 20 bloody, mucous stools, daily. Was seen at 3 p. m., June 5th, 1919, and apparently was in good condition. During the previous two or three days her stools had been better, 2 or 3 in number, being entirely free from blood or mucus. At 7 p. m. the same day, her mother phoned me that the patient had been crying as if in pain, and had passed some blood and mucus in the last stool. Thinking there had perhaps been an exacerbation of the dysenteric condition, I advised the stopping of all foods until morning and ordered a dose of castor oil. At 10:30 o'clock the mother phoned again that the patient had been unable to retain the oil and had passed several bloody mucous stools. I was then convinced that we were dealing with a condition

more serious than infectious diarrhea, and intussusception was suspected. On visiting the patient, a different situation was found than on my afternoon visit. The infant looked sick, the color pale, surface of the body cold, eyes were sunken, and the facies showed sign of shock.

On examination, a firm elongated mass was easily palpated, lying on the upper part of the abdomen, along the course of the transverse colon. A diagnosis of intussusception was made and the situation explained to the parents who readily consented to an operation. Patient was removed to the Sarah Leigh Hospital where she was operated on within the next hour by Dr. Culpepper. On opening the abdomen, the tumor mass was found to be an intussusception of the ileo-cecal type, involving about eight inches of the gut. The invagination was reduced without difficulty and the abdomen closed. The entire operation did not require more than fifteen minutes, and the patient left the operating table in good condition. Convalescence was rapid and the patient made a satisfactory recovery.

THE HOSPITAL AND THE DOCTOR OF TODAY IN RELATION TO MEDICINE OF THE PRESENT AND THE FUTURE.*

By HENRY A. CHRISTIAN, M. D., Boston, Mass.

For the sight-seeing public at home and abroad hospital buildings not infrequently are noted in their baedeckers or are pointed out by their couriers and guides as objects of interest. Rarely, however, do they constitute for the laymen examples of architectural art and only occasionally have they gathered about themselves traditions of past great names with which to arouse an interest in the passer-by. Yet, to the medical man, hospitals are the visible evidences of the progress of medical science and art; in their architecture they are expressions of periods of development in medicine and with their names are twined the traditions of the profession back to that period when physician and priest were one and the same and temple took the place of hospital.

* An address at the annual dinner of the Sphex Club of Lynchburg, Va., March 27, 1920. This was an audience of laymen, not physicians.

As you, who are not initiated into the mysteries of medicine, pass a modern hospital building, I fancy I can hear you say, "Why was it constructed in this form?" "Is there any real reason for this particular style of building," or more likely I would hear "lack of style in building?" I cannot enter the lists as a defendant of hospital construction from the point of view of claiming that the modern hospital building forms an architectural adornment of a city in the eyes of the laymen. Sometimes it does, and usually those are hospitals unsatisfactory from the professional side. However, given a certain purpose, location determined by the needs of the problem, and certain available sums of money, if architecture in its truest sense is an expression of the purpose of an edifice, then many of our modern hospitals are architectural achievements to those eyes that have learned to read into the bricks and stones the purpose of those who created the building.

Why do they not seem more beautiful, for beautiful they rarely are to the lay eye? Many reasons enter here. Architects are unskilled in hospital construction because rarely does an architect during his lifetime plan more than one great hospital. Medical progress has prevented the establishment of rules and traditions for hospital construction. The medical man has certain requirements of inside arrangement which interfere with position of windows and doors, determine number of stories, balconies, roof lines and a hundred other things which must be proportioned and balanced, moulded and decorated to give an exterior architecturally satisfactory. Medical needs are constantly changing. Medical men know little or nothing of architecture; the architect is similarly ignorant of medicine. Is it any wonder then that the professional requirements within dominate the exterior and the architect who has yielded here and given in there presents an external compromise unsatisfactory to himself and unlovely except to those who can read into the structure an expression of its purpose and an index of its activities? Medical men must be blamed for

these conditions, not the architects.

What determines the form of the modern hospital? Why are some of the skyscraper type, while others are dotted cottage-wise over an extensive green lawn, and still others are more compact and yet made up of separated buildings of many forms? As good an answer as any is; the needs of the individuals to be served determines the location; the requirement of fresh air and an abundance of light determines the form, a form further modified by the type of patient—acutely or chronically ill, young or old, sick of body or mind, a danger to his neighbor or not by reason of the contagiousness or lack of contagiousness of his disease.

The skyscraper type is an expression of the need of a hospital in a thickly congested district where land values are so great that economy requires story piled on story to reach fresh air and sunlight, while the lower floors serve for administration and the out-patient activities that make of the hospital of the densely populated district not merely a place for the cure of disease, but a social center for its prevention.

The cottage type suggests the chronically ill of mind or body for whom outdoor occupation is needed, not merely the passive enjoyment of fresh air. These patients' diseases do not prevent their transportation, and they do not require emergency treatment from surgeons and physicians. These and other reasons make it wise to go for a site outside the city where land values are relatively low.

The third, or pavilion type, represents an intermediate position, a combination of the advantages of the skyscraper type and the cottage type. This latter type is the one just now most preferred for large hospitals for those acutely ill of non-contagious diseases, as it gives an abundance of air and light and still occupies a sufficiently restricted area to permit of its location close to the congested districts of the city.

At first thought the function of a hospital would seem simple; to alleviate suffering and cure illness is the generally held idea of a hospital's purpose. This is one of its chief functions, but not the sole one. Equally important are its educative and investigative functions. Nurses, medical students and graduate physicians are daily being educated in the modern progressive hospital. If its work is well done, out from its doors goes each year a steady stream of men and women trained to serve the community in the great fight against disease and its consequences. Equally important in educative value is the effect of the hospital on the patient. Imagine the silent influence exerted on the woman from the dirty, poverty-stricken tenement by a three weeks' sojourn in the clean wards of a hospital, where she is well fed and given cheerful, efficient service from nurses and doctors! Her friends come, too, to see her and to many this visit gives them their first impress of the joy of a clean body and fresh linen. Such contacts can be but an inspiration to better living. The efficient hospital, however, does not leave the matter at this point, but by continuation treatment in convalescent homes, by return visits to its outdoor department and by social service and other forms of follow-up work in the home, the hospital seeks to nurture the seeds thus sown by the sojourn in the hospital. It is difficult to measure in any concrete form the influence thus exerted by the hospital, but we see often in those, who come again for subsequent hospital treatment, evidences that in their first sojourn influences had been started at work which had improved their conditions of daily life. A spirit of friendliness more and more is becoming a dominant feature of efficient hospital service and friendliness is assuredly one of the great factors in the uplift movement. As time goes on it becomes increasingly clear that the hospital of the future is to be a civic health center in the community in which it stands.

But what of the teaching work carried on in the hospital wards? Do the patients not object to being utilized for the instruction of medical students and nurses? Strange as it may seem, the answer most emphatically is "no." The medical man has been long con-

vinced that teaching hospitals are the most efficient; that in them the examination of patients is most thorough and diagnosis most carefully made. Why? Because the keen-eyed, critical, eager medical student cannot be fooled by the cursory examination and careless diagnosis. No teacher can long survive his pupils' criticism of careless work. Even the general public is coming to recognize this, as was well shown recently in one of our large cities where the trustees of a sectarian hospital asked of a medical school that they should make of their institution a teaching hospital. When asked the reason for this change of attitude, for that hospital had rather boasted in past years of not having medical students in its wards, there came the rather surprising reply from its lay board of trustees, "We have found that patients prefer the teaching hospital." This information came in this wise. They had noted a falling off in the number of patients entering their wards and particularly in those able to pay ward charges. A social service worker, investigating this by questioning former patients, often received the answer, "When we can afford to pay we go to hospital A (a sectarian hospital near by in which there is much teaching). If we cannot get into A we come to your hospital." Further questioning brought out that the people considered that in hospital A they were more thoroughly studied and better treated. As one patient said, "At A I have a young assistant almost entirely to myself and the senior doctors always discuss my case with the junior." This, gentlemen, is ward teaching; the young assistant is no other than the medical student and the discussion of his case is his instruction, but, true it is, that this very exercise often brings to light facts of great value in determining diagnosis and treatment.

Any objectionable feature from the viewpoint of the patient in hospital teaching we hear of almost solely from the outside, from those who do not understand what is done; it is not a problem that disturbs us within the hospital walls. In fifteen years' intimate association with hospital teaching I can recall but few complaints from patients because of examinations made by students, and these are more than offset by those who give vent to their sentiments, as did an old Irish woman in my wards, who said one morning: "And shure, Professor, can't I have one of thim little doctors all for meself, like Mary Ann in that ither bed. I've got so miny troubles to get off my mind and you real doctors are too busy to bother." The medical student does much of the hospital routine work while being taught and so adds his part to the efficiency of the institution.

What of medical investigation? Like investigation in any field, it is the inspiriting influence that freshens the daily teaching and the routine of medical practice and administration. Medicine is essentially an advancing profession, and the hospital that contributes nothing toward that advance is one that is rapidly dropping behind in medical progress. Each patient in reality presents a problem for solution. To label his disease is not sufficient, for nature endows the human body with multitudinous variations that constitute the environment for the causative factors of the disease, which in turn are subject to similar variations, for the causes are in many instances living things, now of the animal kingdom, now of the plant world. So the sick individual to obtain the best results should be looked upon as a problem for solution. This attitude is most prevalent where investigation is being carried on. Hence, apart from the value to medicine as a whole of each new discovery there is a value to the individual patient in the spirit of investigation pervading the staff of a hospital. Decade by decade, now this hospital, now that, is able to throw light upon disease; in some cases by a single discovery to remove from the world untold suffering. This single discovery justifies years of labor and great expenditure of money, but such a reward can come to but few hospitals. However, they are the inspirations of our work, the goals to which we aim but rarely attain. All, however, by incessant delving

may contribute the minor facts on which eventually great generalizations may be based. Unlike most investigation, medical investigation not alone contributes a result in the conclusions drawn, but usually has benefited a number of individual patients during the progress of the investigation. For these several reasons the modern hospital encourages investigation and utilizes its funds in providing facilities for investigation, not as a thing apart from the regular hospital routine, but as an integral factor in the daily work of the institution.

In the cure of the sick, in the education of nurses, medical students, graduate physicians and patients, in the investigation of medical problems, results are obtained which concern not only the healing, but in a large sense the prevention of disease, so that prevention of disease becomes too an important function of the hospital built primarily for the treatment of disease.

These varied functions may be best fulfilled by the great hospitals of the large cities, but none of these functions need be lacking in the well organized hospital of the small city or even of the country district.

Judging the future by the past, we can picture the hospital of the future more as a civic health center than merely a place for the alleviation of suffering and the cure of disease. To it should come both the well and the sick seeking advice, receiving instruction, learning both the joys and value of properly adjusted play, getting directions as to how best to adjust body and mind to the strains and stresses of daily work, acquiring the knowledge of how to live a well balanced, hygienic, personal and community life.

Now let us turn to the doctor. How does he differ from the doctor of the past? In personal qualities not at all; he has always been the cherished friend and valued adviser of his patients; no right-minded physician can help being a power for good in his relations to individuals and communities; into his ears go the tales of troubles and worries of all sorts to be adjusted as far as possible by sane counsel. Mistakes he makes, for to err is human, but they are offset by a record of valued service. I say family physician, and I fancy at once there flashes into your mind the picture of a family friend and adviser who, in times of trouble, has been a rock of refuge. Modern developments have split off from the medical group the specialist, but the specialist never has and never can replace the family physician. The specialist is and should be the aid to the family physician. He should be used as but a tool of the family physician. The family physician uses a thermometer as a tool to measure temperature because it gives more accurate results than his unaided sense of touch; similarly he uses the specialist, let us say the eye man, because in the complexity of apparatus and knowledge no one man can know all methods, but the information supplied by the eye man is used by the family physician in much the same way as that supplied by the thermometer. The eye man finds that defects in the eye are causing headache and corrects the defect by appropriate glasses; the thermometer tells that there is a fever to be reduced by appropriate methods. Neither the eye man nor the thermometer yield knowledge on more than a limited field of the whole man whose ills are being treated by the family physician. The eye man, by reason of the time required to perfect his eye work, must lack knowledge of disease as a whole such as the family physician possesses. In this sense the development of specialism instead of destroying the place of the family physician but enhances it by providing more ways for obtaining knowledge of his patients. This is not always recognized at present by the patient and by the specialist, but it needs to be and as time goes on it seems certain that it will be.

As to training, the doctor of today differs much from the doctor of the past, largely in that he has been trained to use a host of methods of obtaining information about his patients which were lacking a decade ago, and he has many more methods of treating disease. Along these lines there is a continuous advance.

I think it will be of interest to illustrate these changes by a few examples. Today we study a case of Bright's disease by methods which measure the efficiency of the kidney to do its work as an organ for the elimination from the body of various deleterious substances that arise in the daily activities of the body and which, if not eliminated, lead to disaster. In the past about all that was done was to test the urine for albumin and sugar and to examine it under the microscope for casts and cells. Now we test the kidney's total efficiency by introducing into the body a harmless dyestuff which is eliminated solely by the kidney and of which we know that the normal kidney will eliminate 60 to 80 per cent. of the amount introduced in two hours after its introduction. This amount is determined by comparing the color of the urine passed in two hours with that of the solution of dyestuff which has been introduced hypodermically. With an instrument we can measure this and say whether 60 per cent., as should be, or only 20 per cent. is eliminated. Or we can measure the kidney's efficiency by seeing whether substances that should be eliminated are eliminated adequately or whether elimination is defective and they are piilng up in the blood. This we do by quantitating chemically the amount in the blood of these various substances. This can be done now on such small quantities of blood that the tests can be repeated daily if needs be without in any way harming the patient. By these means, moreover, we can give much more intelligent advice as to what the patient should or should not eat, basing the advice on the efficiency with which the kidney is actually handling the different foodstuffs. In other words, by these and other methods we take an inventory of what the kidney is able to do and by repeating the inventory from time to time see whether conditions are improving or not under the plan of treatment which we have advised. The older method was incomplete much in the same way as your inventory of stock would be incomplete if you had a cellar full of nails in kegs and merely counted the number of kegs in the front row and paid no attention to what sort of nails were in the kegs; the newer method is complete in the sense of an inventory that counted all of the kegs and gave the number of kegs of each sort of nail and from time to time repeated the count to see whether stock was growing low and what sort of nails should be ordered to keep the stock in balance with the demands made on it by sale.

Today we have a means of studying the heart action which tells us far more about what is going on than did our former methods. If a muscle contracts, a very slight electric current is set up and the direction of this current depends on the line of direction of the contraction wave as it passes over the muscle. The heart is a very complicated muscle which is constantly contracting and relaxing at a rapid rate but in an orderly sequence, in order that the heart with its valves should function as a pump. In disease this sequence becomes disordered. Now these electrical disturbances set up by the contracting muscle of the heart are very slight and can only be detected by special methods. It is a fact in the physics of electricity that if you have a magnet and suspend between its poles a fine wire and if a current passes through this fine wire, the wire will be deflected in one direction or the other, depending on the direction which the current takes, and the amount of deflection will vary with the variation in the strength of current. To detect very slight currents we must have an exceedingly light wire suspended between the poles of a very powerful magnet. To study the heart we use for the light wire a filament drawn from molten quartz or glass and, in order that it should be a good conductor of electricity, this is plated with silver. To prevent tarnishing of the silver this may be covered with gold plate. Still this filament is so fine that it can be detected by the eye only when a beam of light shines on it. For a magnet we employ a soft iron core wound with many turns of insulated copper wire through which is passed a 220 volt current of electricity. As this filament is so fine and its

movements are so slight they have to be magnified by a system of microscope lenses through which pass a beam of light from a powerful arc lamp. By this means the shadow of the filament is thrown on a moving strip of sensitive photographic film and, as it moves, these movements are recorded and, when the film is developed, appear as curves, which may be studied and analyzed in contrast with those of other heart records. This all sounds very complicated, but it is an apparatus in daily use in many hospitals. It is so delicate that the patient does not need to be close to the instrument, but may be comfortably in his bed in any part of a large hospital and be connected by wires such as we use for our telephone with the instrument and a record be made of his heart action on the instrument situated in a remote part of the building. In our own hospital, we have connection in use as far apart as two city blocks between patient and instrument. By means of this instrument, which we call an electrocardiograph, we can tell many things about what the heart is doing and, furthermore, we can know accurately what different portions of the heart may be doing, such as the upper or lower chambers or the right or left side of the heart.

Radium is a new substance which we use to treat certain conditions. Much remains to be learned about it, and we cannot say just now of how much value it is going to be; it seems to be of marked value in treating some sorts of cancers, and some diseases of the blood. Radium is a very interesting and, in some ways, a mysterious substance. First, it is very expensive; it costs today $120,000 a gram, which is about 1/500 part of a pound, or between fifty and sixty million dollars a pound. Second, there is only a limited supply in the world, almost all in the United States, variously estimated at the present rate of production of about 15 grams a year to last five to ten years, if all known ore deposits are mined. Third, a little of the substance radium will go a long way, for it is constantly giving off emanations or rays which may be caught and condensed and used for all purposes that radium is used for. Radium is very peculiar in that it constantly gives off energy and yet deteriorates very slowly. At the rate of its deterioration it would take 1,650 years for 1 gram of radium to be reduced to $\frac{1}{2}$ gram, and at the end of 3,300 years you would still have $\frac{1}{4}$ gram of active radium. So, practically for us, it is indestructible. If it is lost it can be readily found by a detector, which shows it up by its property of discharging an electrometer. If one of you had stolen radium and had it on your person, with an electrometer I could easily locate it. Incidentally, if you undertook to carry it for any length of time in your pocket, later on you would see a terrible sore develop in your skin where it had been nearby. A nurse by mistake threw some radium into a slop hopper; it was located in the sewer in the street, dug out and recovered. Another bit was thrown into the furnace by mistake. The ashes were collected, sent to the laboratory of the Bureau of Mines in Washington and nearly 90 per cent. of the radium was recovered. Fourth, the emanations it gives off change rapidly into other substances, some with a duration of a few days, others with a duration of but minutes. So radium has upset many of our ideas of the immutability of matter and the unchanging character of atoms. Fifth, it works all sorts of queer changes in things with which it comes in contact, including living tissues. This latter we use in medical work. The strange thing about the action of radium on the body is that it or its emanations are applied; nothing is felt; no change is seen, but several days or weeks later changes begin and continue for some time thereafter. If too long an exposure is made, weeks later a great sloughing sore appears which may require months and months to heal. Radium has opened up a large new field for study and investigation of means and methods of treatment and may serve as an example of a large group of activities of rays of one sort or another, X-rays, etc.

The chemist and the biologist have advanced greatly methods of treating disease, and the doctor needs to understand the underlying

principles of these sciences to apply intelligently their results. It may be discovered that some chemical substance will destroy a parasite that is causing a disease, for example, such a disease as hookworm, but it cannot be given to the patient because it is equally poisonous to him. The chemist finds out the molecular structure of the substance in question; by means of chemical methods he can change or add something to any part of the molecule. By making these changes he may find out that one group in the molecule is poisonous for the parasite and another poisonous for the host. The latter group he seeks to remove or to substitute with something else until finally he secures a product that still poisons the parasite, but does little harm to the patient who harbors the parasite. Now the substance is in form to use in treatment, and in this way effective new methods of treating disease are being evolved or older methods are being improved. This work involves making many hundreds of substances in the laboratory and testing them on many hundreds of animals before a single new remedy is worked out. Again, such work requires an intimate knowledge of the parasite and its course in the body. This may be very complex as in the case of the hookworm. Hookworm eggs hatch out in the warm sand and set free minute little worms. These come in contact with the skin of barefoot individuals and make their way into the skin, causing an irritation, the ground itch. Next they circulate in the lymph and blood vessels and finally get to the lungs. Here they are too large to get through the fine blood vessels and so break their way into the lungs and come up or are coughed up the wind pipe as high as the back part of the throat. From this place they are swallowed, pass through the stomach and attach themselves to the wall of the intestine just below the stomach, where they grow and cause damage. All of this must be known to plan a proper attack on a parasite and indicates the complexity of knowledge that is necessary in working out new ways of treating disease.

I might go on and enumerate other examples, but these are sufficient to indicate the need for constantly improving the training of the physician.

Each year brings new advances in science, much of which helps in the fight for the prevention and cure of disease. The future is full of promise of achievement. Is it any wonder that the field of medicine is an ever fascinating subject to the medical man and that the many possibilities of achievement lure medical men to spend months and years in the investigation of its problems? To him the future is full of promise; to you his successes in advancing knowledge of disease are of vital interest, for on this knowledge depend your health and happiness and that of your families and children.

A PLEA FOR CESAREAN SECTION WITH BETTER OBSTETRICS.*

By S. B. MOORE, M. D., Alexandria, Va.

With the improved technique of modern surgery and obstetrics, we can and do cesarean section with a very low mortality to both mother and child and, with this in view, under proper surroundings as in a modern hospital, we do not hesitate to open the abdomen to remove a child to save one or both.

Physicians must educate the public to this view point, more especially in rural districts. In cities the public are more in touch with these life-saving measures and are not afraid to go in the hospitals when there is an indication for this operation. Each year hundreds or thousands of mothers and children are sacrificed because of protracted labor, or delayed labor, due to deformities of the mother's pelvis which are unrecognized until too late. Diseases of the kidneys or heart cause high mortality.

I believe it is about time that the medical man and the public are awakening to the fact that over ten thousand mothers and fifteen thousand babies are sacrificed every year. Many of these could and should be saved by more careful treatment of the pregnant woman and by following the case from beginning of pregnancy to the time of delivery. The kidneys should be closely watched and pelvic

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measurements made in all cases, especially primipara. We should make a complete physical examination in every case. If there is kidney or heart trouble, give it proper treatment. If there is a contracted or flat pelvis, make arrangement for cesarean section in some modern hospital. Send the patient in at about eight and a half months and let the operating be done without any previous interference, and do not put the operation off as last resort. If you attempt instrumental delivery and fail, in a majority of cases you will have infection to deal with, and this will increase the mortality rate in the operation.

In eclamptic coma do not hesitate. I move all eclamptic cases to a hospital and treat there; if they do not respond to medical treatment, cesarean section should be done. This operation should be resorted to when the head will not come down in the pelvis after twelve hours real labor.

High forceps operation very often does considerable harm to both mother and child and, as you all know, our institutions are filled with children suffering from birth injuries; forceps badly applied are the cause of the major portion of these. The surgeons are busy repairing damage to mothers due to work of midwives and some physicians.

Cesarean section is a safe procedure today, the previous risks of all surgical operations have been eliminated. Under proper conditions and if the operation is performed at time of election, the mortality is no higher than in appendicitis, or about 1% or less. It is not considered an emergency operation or one of last resort. Place yourself in the position of the surgeon called in to perform the operation after hours of hard protracted labor with digital interference, failure to apply forceps firmly having caused many lacerations, and probably infection and numerous other conditions, and you will appreciate the situation confronting him. We will cut down the mortality to both mother and child by cesarean section in placenta previa, or in cases of concealed hemorrhage, or pernicious vomiting after the seventh month.

A few years back we did considerable surgery in private houses, but the technique was never good and, naturally, the results not so good as in well appointed hospitals. Today you rarely see an operation in a private house, and for the same reason we should use more care with our obstetrics.

Present day conditions have evolutionized obstetrics and drawn it into the field of as clean work as in surgery. The obstetrician who fails to use the most up-to-date technique falls short of the mark set by the best man. We are getting excellent results in surgery with asepsis, antisepsis, technique and team work, and we can do the same in obstetrics, especially the troublesome cases.

Statistics show that grouping all women of child bearing age together, tuberculosis alone is more deadly than childbirth. Take the year 1915 for an example:—there were among women from 15 to 45 years, 29,200 deaths from tuberculosis, 10,134 from childbirth. This is going on year after year without much improvement. I consider it the greatest medical crime of today. Obstetrics has always been the most exhausting branch of medicine and the obstetrician is the poorest paid, according to the time consumed and the ungodly hours he is called upon. It is the duty of the physician to charge more and give better service; at least do clean work and cut down the infection.

The medical schools should pay more attention to practical teaching. A great majority of the physicians go out with but a vague knowledge of obstetrics; many never have an opportunity to deliver a case and probably see only a few cases delivered. Those who are fortunate enough to get hospital appointments are better equipped and will do better work, provided they keep up with modern methods by reading the best medical literature and occasionally taking in some good clinic.

A word in regard to the midwife:—She is usually a very ignorant woman who has a house full of children and, for the reason of this great number of children, the laity is under the impression that she is capable of making a good delivery. She has not the least idea what to do in an obstetrical emergency, and no knowledge of asepsis. If everything goes according to schedule, she will tie off the cord with any old cord and use a pair of scissors that she may find around the house, without any attempt at sterilization, and the patient gets through by the grace of God. She may call in a physician if the family gets uneasy and demands it.

It is the duty of the physician to educate the public to the fact that we must have clean obstetrics, and serious obstetric emergencies should be treated in well appointed hospitals

and these emergencies should be recognized early. I believe the day will come when we will send practically all obstetric cases to hospitals as we do surgical cases today, and by this will save thousands of lives each year. In closing, I caution you again to examine every pregnant woman carefully and, if there are indications for cesarean section, do not put it off as a last resort but make an operation of election.

SOME DISTURBANCES OF THE PITUITARY BODY.*

By FRANK H. REDWOOD, M. D., Norfolk, Va.

At present we speak of three rather distinct classes of pituitary disease: viz., hyperpituitarism or overfunctioning of the pituitary body, associated with giantism and acromegaly; hypopituitarism or underfunctioning, associated with infantilism, both physical and mental, and with adiposity; and lastly, dyspituitarism showing many mixed syndromes.

Before going into some of the disorders of the pituitary, it is neecssary to review the histology and physiology of the gland which is so very important when we come to the treatment of these conditions. Briefly, then, the hypophysis is composed of three distinct parts,[1] a posterior lobe or pars nervosa; an anterior lobe or pars anterior which is the gland proper, formed by epithelial cells arising originally from the buccal cavity; and a third part or pars intermedia which is divided into two parts. The function of the posterior lobe has to do with metabolism, maintaining blood pressure, increasing peristalsis and stimulating the sympathetic system generally, increasing mammary gland secretion, stimulating uterine contractions and, recently, has been credited with increasing the absorption of cerebrospinal fluid. The anterior lobe is supposed to control growth, especially skeletal. The pars intermedia is said to produce a diuretic hormone. From such a variety of functions we can readily see how a disturbed pituitary can produce very grave and intense general symptoms. We must not overlook the fact, however, that the other endocrine glands can partially compensate for pituitary deficiency. For instance, the thyroid can partially compensate for the connective tissue control and metabolism in skin, hair and joints.[2] At times other glands are so stimulated as to decompensate, so to speak, and the symptoms of this decompensated gland overshadow the real lesion or the stimulus producing gland so that to point out the gland that is primarily at fault is sometimes quite hard to do. As an example, if the adrenals were called upon to decrease the output of adrenalin to reduce an increased blood pressure caused by an overfunctioning of the pituitary, there probably would be a pigmentation of the skin due to a gradually deficient adrenal secretion, from which fact it would be difficult to diagnose a hyperpituitarism. On the other hand, we can readily see how a pigmentation of the skin could be caused indirectly by a hyperfunction of the pituitary. We frequently see low blood pressures in patients with a deficient secretion of the pituitary. On feeding these patients supra-renal extract, the blood pressure promptly rises as a rule. Bearing in mind this poly-glandular syndrome, I want to call your attention to some of the clinical signs pointing primarily to pituitary disturbance.

First, let us consider a new growth of the hypophysis. At first there may be symptoms of a hypersecretion due to the gland being stimulated by the tumor. But later there is a hypo-function due to the tumor pressing directly on the gland, giving rise to bitemporal hemianopsia and, as the tumor grows, there will be paralysis of the eye muscles with strabismus and pressure on the crura cerebri giving rise to pyramidal tract signs. As symptoms of intracranial pressure increase there are the general signs of brain tumor and, unless this pressure is relieved by surgery, the patient steadily goes blind. The systemic signs in such a condition are a lowered body temperature, a diminution of sexual activity, mental sluggishness, increased body weight and an increased tolerance for sugar. The accumulation of fat is especially prominent around the buttocks and breast. If the patient happens to be a child there are various degrees of infantilism, both physical and mental, and if a boy the mammary gland develops and the general contour of the body is that of a female. If the child is afflicted before the epiphyses have united, there is rapid growth of the long bones, increased growth of hair and increased sexual development. Should such a condition arise after the epiphyses have united, the long bones, of course, do not grow but there is seen an enlargement of the hands and feet and changes

*Read before the Norfolk County Medical Society, January 17, 1920.

in the skull. Many of these patients will tell you voluntarily that they wear a size larger shoe or glove than they formerly did.

In the case of a simple hyperplasia of the gland, the patients' features are coarse, they have a broad face, the feet and hands are large, the chin is square, the sexual organs are overdeveloped, there is an early and diffuse growth of body hair, chiefly pubic and axillary, the eyes are wider apart than normal and the central incisors are spaced. There is usually a lowered sugar tolerance with traces of sugar in the urine. Increased fondness for sweets is frequent. If this occurs in a young child he may show a marked change in temperament, being disliked by his playmates. As this overfunctioning goes on there is a lowered mentality, the mental symptoms ranging from sluggishness to complete mental deterioration. After a time the gland, like an engine that is over-used, soon wears out, its secretion diminishes, and we have then to deal with a hyposecretion and there will be signs of a dyspituitarism, this being the third type about which I spoke at the beginning of the paper.

Under the head of dyspituitarism are incomplete types of giantism and acromegaly, some cases of adiposity and various epilepsies. These patients may have a subnormal temperature and are usually wakeful and irritable. The body hair is apt to be thin and fine and the skin smooth. In these cases also we may find a general status lymphaticus.

I want to cite a few cases to demonstrate different phases and conditions of pituitary disturbances. The first case is a male 22 years of age who came under my observation at the New York Neurological Institute. The family history is unimportant. He came to the hospital with the following complaint. Three years ago he fell from a pile of boxes to the ground, a distance of fifteen feet. He was unconscious for 86 hours, then was conscious for 15 hours and again unconscious for 96 hours. Then he remained well for two months. He went to bed feeling well in every way but the next morning he could not be awakened. He slept all day and at six o'clock that night he awoke of his own accord. For three and a half years he had these attacks at intervals of six weeks to two months, each attack lasting from twenty to forty-five hours. The only aftermath of his "nap" was a severe bitemporal headache which lasted four or five days. This patient was a tall man with large hands and feet, soft skin and a complexion of the peaches and cream variety. The genitals were very large but the pubic hair was of the usual male distribution. He was very timid and bashful, blushing deeply when asked about his sexual life. The neurological examination was negative except for quite active knee jerks. The blood and spinal fluid were negative. His Binet-Simon test was seventeen years. X-ray of the skull showed an enlarged sella turcica with prominent clinoid processes almost encroaching one upon the other. He remained in the hospital nearly ten weeks and improved considerably not having had an attack during his stay. He was given whole gland pituitary extract in fairly large doses.

This case was pituitary in nature as was partially proved by the therapeutic test. Cases of so-called narcolepsy are not so infrequent and all have to do with some pituitary disorder. Cushing[3] has shown that the anterior lobe is in some way associated with sleep. He[4] found, in his early experimental work of nearly total hypophysectomy in dogs, that animals after a few days passed into a lethargic state, with shallow respiration, low blood pressure, retarded pulse, low temperature and an insensitiveness to external stimuli, they not being aroused even by taking blood pressure readings from an open femoral. After hours or a few days they passed into a fatal coma. In later experimental work on hibernating animals, he found in animals killed during hibernation a pituitary gland very much diminished in size. Histologically the cells of the anterior lobe were small and vacuolated and had completely lost the characteristic staining reactions to acid and basic dyes. In his conclusions, he ascribes hibernation to a seasonal wave of pluriglandular inactivity. He cites a most interesting clinical case of a man with a tumor pressing on the pituitary and, in describing his symptoms, he says "not only did the patient pass most of the day in slumber but on several occasions he had prolonged sleep lasting several days from which he could not be aroused." Marshall Hall[5] years ago said that hibernation, day sleeping of animals with nocturnal habits, and natural sleep were different from one another only in degree. The pituitary has been held responsible by some for the lethargy in lethargic encephalitis.

The second case is a female 25 years of age

whose chief complaint is inability to keep awake, which complaint is of nine months' duration. She says, in describing her symptoms, "my eyes feel tired so that I have to close them and when I do I go to sleep no matter how hard I fight against it." She would fall asleep while taking dictation and dream and before she would awake entirely would write her dream in the dictation book. On one occasion she found the following incorporated in a letter which she had taken in shorthand, "a tall, good looking blonde lady in the office, who had left her white gloves." She complains of feeling good for nothing and sluggish. Has gained 22 pounds in nine months. She has an uncontrollable desire for sweets and eats about a pound of candy a week. The neurological examination is negative. The heart is normal, the pulse 90 and the blood pressure 122 systolic and 90 diastolic. Radiograph of the sella turcica shows a very small fossa with prominent clinoids which are almost in apposition. She was put on two grains of pituitary extract whole gland, three times a day, with one quarter grain of thyroid extract. Pituitary was later increased to eight grains a day. At the present time, three months after beginning treatment, the patient is apparently normal and has no complaints.

The third case is a boy of 16 years who has had convulsions for six months, at intervals of three or four weeks. The mother states that he is a bad boy of the street corner type who spends all of his money on cigarettes and at the soda fountain. He is backward in school, having reached only the fourth grade. The examination of the nervous system was negative. The boy had a large frame and there was no body hair. The tonsils were very much enlarged. The Wassermann was one plus with a cholestrin antigen which was disregarded. The sella turcica was small, irregular in outline, and the pituitary space was impinged upon by the unusually shaped clinoids. Since being under treatment he has had only one petit mal attack. Mentally he is much brighter, has stopped smoking and has gained fourteen pounds in two months. The entire make-up of this boy seems to have changed since he has been under observation.

This case is a female 22 years of age. The family history is unimportant except a half aunt developed a psychosis after the birth of a child. The mother says the patient sleeps poorly, awakes often and rambles about the house, is afraid to go to sleep alone in the dark, has many different phobias and has hallucinations of sight. The menses have always been irregular and very scant. She has never been a normal child and was taken out of school at the age of 15 because she was "nervous." The girl is very small, only four feet and three quarters of an inch in height and weighs 78 pounds. All of the teeth are in poor condition, the central incisors are spaced and blunt and the lateral incisors are somewhat small. Body hair is scant. She is infantile both physically and mentally. The blood Wassermann was negative. Radiograph of the skull shows a very small sella with encroaching clinoids. This patient has been under treatment for six months. During that time her menses have been normal in every way, she is very much brighter mentally, sleeps much better, does not have hallucinations and is taking a marked interest in all types of reading matter, which her mother says she has never done before. The parents are very much pleased with her progress.

In conclusion I wish to call your attention to a polyglandular syndrome first described by Dr. Timme of New York. The chief symptom of which the patient complains is great fatigability, so that he is called a lazy and good-for-nothing individual. On examination one usually finds a large well-developed muscular patient with scant body hair and, if a man, female distribution of pubic hair, a low blood pressure and the white suprarenal line of Sergent. Radiograph of the sella turcica will show some alteration of its contour. Upon feeding these cases glandular extracts the results are almost miraculous in many cases. When the feeding is stopped all of the old symptoms return. A number of these cases were encountered in the army and after a short study were made useful soldiers for domestic service.

The success gained in treating endocrine disorders depends on recognizing early the glandular disturbance and pointing out the primary gland at fault. In the case of the pituitary, there should be a clear distinction between local signs of tumor due to involvement of structures around about the gland and systemic disturbances due to alteration of its secretion.

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310 *Taylor Building.*

A NEGLECTED METHOD OF TREATMENT FOR ULCERATIVE CYSTITIS IN THE FEMALE.*

By ALFRED P. JONES, M. D., Roanoke, Va.

The study of cystitis is one that is of unfailing interest to the general practitioner, the surgeon, and the urologist alike, because of its frequency and because its control occasionally is difficult. The varieties and degrees of cystitis are numerous, and it is not within the province of this brief report to attempt a classification. The treatment of cystitis is as old as the practice of medicine, and the number of methods and remedies advocated rivals the "fifty-seven varieties." Every one is well acquainted with the fact that silver salts have proved to be the most efficacious of local antiseptics and that, of these, the first used, silver nitrate, still maintains its pre-eminence as the most valuable for general use.

Even ante-dating the local antiseptic treatment, irrigation of the bladder with sterile water or other bland solutions enjoyed much popularity. To whom belongs the credit for introducing this most familiar of bladder treatments, it is impossible to say at this late date, but one will, perhaps, be safe in awarding the palm to Hippocrates or Galen.

With the advent of the two-way return-flow catheter, continuous irrigation became popular because of its obvious advantages, but in spite of the fact that all text books occasionally mentioned it and some commended it warmly, the writer feels that its real value in severe cystitis is not yet recognized. This report is presented with the hope that the method will be more frequently employed.

* Read before the Tri-State Medical Association, February 18, 1920, at Charlotte, N. C.

The cases here reported are only two in number and may be classified as chronic ulcerative cystitis. The type is a well-known and very familiar one and is characterized by constant pain, burning and tenesmus, with pyuria and hematuria as most marked symptoms. Cystoscopic examination shows an intensely red, injected bladder mucosa with ragged ulcers of varying sizes, which bleed freely on the slightest touch. That the condition is a serious and obstinate one is evidenced by the fact that the formation of a vesico-vaginal fistula for the purpose of putting the bladder entirely at rest has been advocated, and the writer has seen two cases so treated, it may be added, with rather unsatisfactory results.

The first case, Mrs. I. W., married, twenty-six years old. First seen on December 18, 1917. She gave a typical history as above described. The trouble had been present for three months. The symptom which had most alarmed the patient was the frequent hematuria. At the time of examination the urine was deep red in color and the microscope showed it to be loaded with red cells and to contain a considerable amount of pus. Cystoscopic examination showed an acutely inflamed bladder mucosa and four or five shaggy ulcers, the largest—in the left fundus—being about the size of a quarter. The ulceration did not involve either ureteral orifice and both orifices were normal in appearance, with the exception of the fact that they shared in the general cystitis. As there were no symptoms pointing to kidney disease, it was thought best not to catheterize the ureters through the infected field. The probability of a tubercular origin of the ulcers was first considered, but this was definitely ruled out by repeated smears from the ulcers and from the urine sediment as well as by cultures. The colon bacillus was the only organism found and it was constantly present. The patient was treated with the usual applications of silver nitrate up to ten per cent, applied to the ulcer by means of the open air cystoscope, followed by a bladder instillation of two ounces of one to five hundred silver nitrate.

This treatment was persisted in for four weeks without improvement either in the patient's symptoms or the cystoscopic picture. By this time the patient naturally became a little dissatisfied. She was referred to a urologist in Baltimore, Maryland. After a cystoscopic examination, he sent her back to me with the advice that a vesico-vaginal fistula be made and continuous irrigation instituted. This the patient refused. Therefore, as a substitute measure, she was put to bed in the hospital, and, for three hours in the morning and three hours in the evening, a continuous irrigation of sterile water was given through a metal two-way catheter. She was also urged to drink as much water as possible, but no antiseptics were given. Cystoscopic examination showed at the end of the first week a clearing up of the general cystitis, but no visible change in the ulcers; at the end of the third week, considerable improvement in the ulcers; and, at the end of the fifth week, a complete healing of all the ulcers with normal bladder mucosa covering their sites. The patient has been heard from several times since discharge from the hospital, the latest report being about two months ago, and she has had no return of the trouble over this period of about two years.

The second case, Mrs. M. G. Married. Age 40 years. Was first seen on September 24, 1919. She gave a history of a severe cystitis and examination of the urine showed a large amount of both pus and blood. Cystoscopic examination showed a marked cystitis with ulcers about the size of a dime and small spots of early ulcers in the neighborhood of both ureteral orifices. Smears and cultures showed the presence of the colon bacillus. The patient was admitted to the hospital and put on continuous sterile water irrigations three hours in the morning and three hours in the evening and water forced by mouth. No medication. At the end of fifteen days cystoscopic examination showed healing of the ulcers and disappearance of the general cystitis. The patient was seen a few days ago and reports entire relief of symptoms.

From the results obtained in this very limited number of cases, the following conclusion seems warranted. Continuous irrigation of the female bladder with sterile water by means of a two-way catheter is a simple and harmless procedure and is of great value in certain cases of severe ulcerative cystitis.

Jefferson Hospital.

A CASE OF EVENTRATION OF THE DIAPHRAGM.

By W. ALLAN, M. D., Charlotte, N. C.

Eventration of the diaphragm, sometimes known as dilatation, insufficiency, "hochstand," or elevation of the diaphragm, denotes a condition in which half the organ is thinned out and distended, rising high into the thoracic cavity with corresponding upward displacement of the abdominal viscera on the affected side. There is no break in continuity as in diaphragmatic hernia.

The subject has been well reviewed in our literature by Sailer and Rhein[1] in 1905 and particularly by Bayne-Jones[2] in 1916, so that no extended review will be given here. The latter collected 45 cases, only four of which had been reported from this country. Aronson[3] reported a case in 1918 which, with the present case, makes a total of 47 cases. In four instances the right side was affected, in forty-three the left. Eppinger[4] has shown that the ratio of eventration to hernia of the diaphragm is about 1 to 37.

Cruveilhier[5] considered the condition secondary to disease of the phrenic nerve, of the diaphragmatic muscle, or abdominal disease, causing unequal pressure on the two sides of the diaphragm; but most subsequent observers have adopted Thoma's[6] view, that eventration is an anomaly caused by defective development. Bayne-Jones points out that pregnancy, the commonest cause of abdominal distention, has not been associated with this condition (only 8 out of 43 adults were females); that it has been found in four fœtuses or young children, and that in nine of the forty-five cases, which he reviews, other developmental anomalies were present. Aronson's case had Hirschsprung's disease, and the case

here cited had bilateral inguinal herniae.

Post-mortem examination has shown the affected half of the diaphragm reduced practically to a thin fibrous sheet with almost no muscle tissue remaining. The dextro-cardia, which has heretofore invariably been found, in eventration of the left side has generally been attributed to mechanical displacement of the heart and mediastinum by the bulging up of the diaphragm. Sailer and Rhein take issue with this view, showing that the elasticity of the right lung is more important, and citing a number of cases of displacement of the heart to the left with hypoplasia of the left lung, both with and without elevation of the diaphragm. In the present case the heart was not displaced to the right but directly upward.

The left lung is not compressed, being only partially developed, at times showing incomplete division into three lobes. The development of the thoracic walls is normal. Below the diaphragm, developmental anomalies of the colon and mesentery have been found with a varying amount of upward displacement of the abdominal viscera.

These cases may have no symptoms referable to the diaphragmatic condition; some have cough and dyspnea, probably due to cardiac displacement; others have gastro-intestinal symptoms.

On physical examination, lagging of the left side with displacement of the apex beat will be seen. The lower left chest is usually tympanitic with absence of breath sounds, fremitus, and Litton's sign. In Sailer and Rhein's case the lower left back was dull because of an enlarged spleen. In the present case, the lower left chest was dull, possibly from the same cause or from a preceding tubercular pleurisy.

The Roentgenological examination has been well set forth in Becker's[7] article. When the distended stomach fills the left lower thorax, the clear area is free from the usual pulmonary markings and its upper surface is bounded by a smooth elliptical line. Fluoroscopic examination shows this line to be the diaphragm, which during respiration may reveal the left half contracting normally or paradoxically.

Eventration is apt to be mistaken for hydropneumothorax and needled, and the differentiation between eventration and hernia of the diaphragm is at times extremely difficult.

Case Report.—A real estate agent, aged 31, single, was referred for examination, February 7, 1916, by Dr. R. L. Gibbon. His mother had died at 51 of stomach trouble; a brother, who had had no disease, had never been strong; two brothers had died in infancy. The patient at the age of seven had nearly died with dysentery lasting a month. No other illness until the age of 24, when he had a fever of ten days' duration, called malaria. Had no chills with this, but during this fever developed a cough, which he has had ever since. Five years ago took a cure for alcoholism, and has abstained since. Chews and smokes. Had gonorrhea and venereal herpes some years ago. Two years ago had a nervous breakdown and stayed in bed two months. Four years ago, after cranking his car, felt a sharp pain in right lower abdomen, and found he was ruptured slightly on both sides.

At present, complains of general weakness; walking up hill brings on dyspnea and cough and at other times pain over sternum. If he leans forward and coughs, the upper abdominal muscles, at the costal margins, will contract violently, leaving lumps which he has to massage until they disappear. Coughs some at night and on rising, and brings up an ounce or more of purulent sputum in the morning. No night sweats in four years. Has dumb chills in spring and fall and on damp days, with enough fever to make him sit close to a stove. Before his fever seven years ago, he weighed 135 pounds, and now weighs 105 pounds. Appetite good. Sleeps very poorly, averaging three hours a night. No gastro-intestinal or genito-urinary symptoms. His cough, dyspnea, weight, and weakness have not varied much in the past seven years. He takes no exercise, has few amusements, works steadily and worries a great deal.

Physical Examination.—A small, weak, pale, thin man. Eyes and throat normal. Epitrochlear and left posterior cervical glands enlarged. Skin dry and looks transparent. Chest.—The lower left side seems smaller than right and lags on respiration. The right side is hyperresonant throughout, with small moist rales under middle third of scapula behind. The resonance over the upper third of the left side is considerably less than on the right side, but has no tympanitic quality. The lower half of the left front is tympanitic; the lower two-thirds of the left axilla and the lower half of the left back are flat. Breath sounds harsh and broncho-vesicular over upper half of left side, absent below. No rales. Voice sounds and tactile fremitus absent over lower half of left lung. Abdomen flat, nowhere tender, thin walled; liver dulness normal and spleen not palpable. Both inguinal rings are weak and stretched with small incomplete herniae, direct on the right, oblique on the left. The femoral rings bulge considerably on coughing. Extremities and genitals normal. Superficial and deep reflexes normal. Joints normal; there is a moderate spinal curvature with apex opposite the left scapula; this does not modify the mobility of the vertebral column.

Apex beat in midclavicular line, third interspace, left. Heart size and sounds, rate, and rhythm normal. Blood pressure 118/80.

Laboratory Examinations. — Haemoglobin 75%. White count 14,800. Polynuclears 72%, lymphocytes 17%, large mononuclears 7%, eosinophiles 2%, basophiles 2%. Red count 4,800,000. No plasmodia. Shape and staining reaction of red cells normal, some variation in size. Wassermann strongly positive.

Urine acid, 1023, negative for albumen, sugar, indican; microscopically negative.

Feces negative for eggs and protozoa.

Sputum showed tubercle bacilli.

Roentgen Examination. — The plates showed on the right side a tubercular focus below the right apex, corresponding with the moist rales heard in this area. The left side showed over the lower half of the chest a uniformly dense shadow bounded above by a smooth curved line, level with the sixth rib behind and fourth in front. The heart shadow was high and largely behind the upper end of the sternum. (The Roentgenograms were made by the late Dr. J. W. Squires and unfortunately destroyed after he entered the army.)

Under the impression that this was a left pleural effusion, the left back was needled, but no fluid obtained. The needle, inserted in several places, seemed to be always in solid tissue. A fluoroscopic examination now demonstrated that the smooth upper border of the left chest shadow was the diaphragm, which could be seen contracting normally on inspiration. The cardiac contractions could be seen above this, from the third interspace to the sternal notch. Gastro-intestinal plates revealed no abnormality and a corrected diagnosis of eventration of the left side of the diaphragm was made. The patient died a year or so later from pulmonary tuberculosis.

The two unusual points in the case were the displacement of the heart directly upward, and the dulness in the left lower back and axilla, which may possibly have been due to an enlarged spleen as in Sailer and Rhein's case, or to a previous tubercular pleurisy.

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A BRIEF ANALYSIS OF THE ANATOMICAL DIAGNOSES OF 699 AUTOPSIES OF PATIENTS DYING OF TUBERCULOSIS.*

By WYNDHAM B. BLANTON, M. D., Richmond, Va.

A review of 699 autopsy protocols of tuberculosis from the Pathological Department of Bellevue Hospital, New York City, brings

* From the Pathological Laboratory, Bellevue Hospital, N.Y.C.

TABLE: 699 AUTOPSIES ON TUBERCULOUS PATIENTS ANALYZED ACCORDING TO ASSOCIATED LESIONS AND THE TYPE OF PULMONARY DISEASE.

COMPLICATIONS	CHR. PUL. TBC.		AC. PUL. TBC.		GEN. MIL. TBC.		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%
Intestines	159	39.5	54	35.7	45	31	258	37
Lymph Glands	75	18.6	31	20.5	65	44.5	171	24
Spleen	24	5.9	23	13.9	68	46.5	105	15
Liver	27	6.7	16	10.6	56	33	99	14
Kidney	27	6.7	12	7.9	48	33	91	13
Meninges	19	4.7	11	7.2	55	38	85	12
Peritoneum	13	3.2	2	1.3	37	25.3	52	7
Pericardium	23	5.7	6	3.9	16	11	40	5.5
Brain	3	.7	4	2.6	26	18	33	5
Larynx	22	5.4	3	1.9	5	3.4	30	4
Prostate	7	1.4	4	2.6	5	3.4	16	2
Bone	2	.5	11	7.2	3	2	16	2
O. M. P. A.	8	1.9	0	.0	3	2	13	1.8
Epididymis	5	1.2	1	.6	6	4	12	1.7
Seminal Vesicles	7	1.4	2	1.3	2	1	11	1.5
Appendix	6	1.3	1	.6	0	.0	7	1
Adrenals	3	.7	4	2.6	0	.0	7	1
Ureter	4	.9	2	1.3	1	.7	7	1
Bladder	1	.2	3	1.9	13	9	7	1
Heart	1	.2	5	3.2	0	.0	6	.9
Ovary	3	.7	0	.0	1	.7	4	.6
Cholangitis	1	.2	0	.0	3	2	4	.6
Tubes	3	.7	0	.0	0	.0	3	.4
Stomach	2	.5	0	.0	0	.0	2	.3
Uterus	1	.2	0	.0	1	.7	2	.3
Testicles	0	.0	0	.0	2	1	2	.3
Pancreas	0	.0	0	.0	1	.7	1	.1
Thyroid	0	.0	0	.0	1	.7	1	.1
Thymus	1	.2	0	.0	0	.0	1	.1
Thoracic Duct	0	.0	0	.0	1	.7	1	.1
Endocardium	0	.0	0	.0	1	.7	1	.1
Vas Deferens	1	.2	0	.0	0	.0	1	.1
Chest Wall	1	.2	0	.0	0	.0	1	.1

forcibly to light certain important facts connected with this disease and its complications.

The table shows at once the predilection of tuberculosis for certain organs.

The intestines easily head the list. Of the 699 tuberculous patients autopsy revealed 258 or 37% with intestinal lesions. That this extremely high incidence of intestinal tuberculosis is not recognized ante-mortem is proved by the clinical records of a single ward which has admitted during the last four years 2,772 tuberculous patients. Among this large number of patients only twelve cases of tuberculous enteritis are recorded. Several explanations are apparent. In the great majority of cases tuberculous enteritis is a quiescent complication. Even when it is not, the physician often fails to heed the patient's complaint of abdominal pain and diarrhea. Inquiry about the bowels should never be omitted in cases of pulmonary tuberculosis. Much can be done for the patient's comfort by the early recognition of this complication.

That the lymph glands and the intestines head the list of the complicating lesions of pulmonary tuberculosis is not strange when the relation of these two organs to the disposal of the tubercle bacillus is borne in mind. The filtering function of the lymph nodes explains the arrest of the tubercle bacillus here, and the constant swallowing of infected sputum gives the intestinal mucosa little chance of escaping infection.

The high percentage of tuberculosis of the spleen, liver, kidneys and brain is due to the fact that many cases of miliary tuberculosis are included in the list. The tendency of these organs to focalize the organism during a tuberculous bacteriemia is well known to every pathologist. Exclusive of the blood stream type of disseminated tuberculosis, the incidence of tuberculosis in these organs was much lower (.9% to 7%).

There were 52 cases or 7% of peritonitis.

This calls attention to another important complication often overlooked. That peritonitis is many times not discovered during life is shown by the fact that of the 2,772 cases referred to above only 16 were recorded as having this complication. The signs of peritonitis in a dying patient are very illusive and many of these signs develop only during the latter days of illness. One should daily inspect the abdomen of a patient with tuberculosis.

Laryngitis occurred in 4% of these cases. It is interesting that the clinical records above referred to accord exactly with this figure. Tuberculous laryngitis is too distressing a complication to be missed even by the clinician. More recently a careful routine laryngoscopic examination of tuberculous patients was undertaken, and a much larger percentage of tuberculous laryngitis was discovered. This complication has been variously reported as occurring in from 5 to 85% of all cases of pulmonary tuberculosis.[1] The incidence is in all probability proportional to the diligence with which search is made.

The above table shows the incidence and distribution of tuberculosis of the genito-urinary tract in patients dying of pulmonary tuberculosis. Among these 699 autopsies on tuberculous patients there was not a single instance of genito-urinary tuberculosis occurring in the absence of pulmonary tuberculosis, whereas Braasch[2] in a clinical analysis of tuberculosis of the kidney at the Mayo Clinic reports in 346 cases of renal tuberculosis 71% with lesions elsewhere, of which only 28% showed pulmonary involvement. Renal tuberculosis occurred in less than 5% of his cases with pulmonary tuberculosis.

These figures make essential the examination of the chest of all patients suffering from chronic genito-urinary infection of undetermined nature. A negative X-ray, sputum and physical examination should bear strongly in the evidence against such an infection being of tuberculous origin.

The low percentage of genito-urinary tuberculosis found among this series of autopsies is not in accord with clinical experience, many cases of tuberculous epididymitis, for example, being seen yearly in the tuberculosis wards of Bellevue Hospital. Among some 1,100 admissions to the genito-urinary service last year, there were 42 cases of tuberculous epididymitis alone. It has seemed to us that the type of tuberculous patient with foci outside of the lungs, such as in the genito-urinary tract, was somehow more resistant to the inroads of the disease. This very resistance to this type of the disease may explain why relatively so few are encountered at autopsy.

Finally, there is a group of organs such as the pancreas, thyroid, uterus, testicles, endocardium and stomach in which the tubercle bacillus rarely lodges. This is an old observation, but one well worth remembering in considering the etiology of disease in these organs.

SUMMARY.

The anatomical lesions of fatal tuberculosis as disclosed by this series of autopsies are many and varied. The disease shows a distinct preference for certain organs and rarely if ever occurs in others. The lungs, intestines and lymph glands attract the tubercle bacillus far more frequently than other organs. In the cases here reported genito-urinary tuberculosis was always associated with pulmonary involvement.

300 *West Grace Street.*

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COMPLETE ABRUPTIO PLACENTAE IN THE TWENTY-NINTH WEEK OF PREGNANCY; MANUAL DELIVERY; RECOVERY.*

By VIRGINIUS HARRISON, M. D., Richmond, Va.

Abruptio placentae is a term given by DeLee to designate "premature separation of a normally situated placenta" so that it will correspond with placenta previa, the former causing "accidental hemorrhages," the latter "unavoidable hemorrhages." The abruption may be complete or only partial. It may occur at any time during pregnancy or labor. It causes a high rate of mortality in both mothers and children, the complete variety destroying more than 50 per cent. of the mothers and 95 per cent. of the children. The incomplete variety is more favorable for both mother and child.

The causes are not definitely known, but albumen is found in about 70 per cent. of the cases, and eclampsia, nephritis or some form of toxemia can usually be found; a short cord or one around the child so as to make it rela-

* Read at a meeting of the Richmond Academy of Medicine and Surgery, April 27, 1920.

tively short may detach the placenta during delivery.

The direct diagnosis is made by abdominal examination, vaginal examination and the clinical symptoms. Briefly, the patient feels colicky pains in one side of the uterus with a tenseness of the abdomen; these pains are not like labor pains, necessarily. She soon feels weak and may show symptoms of shock and anemia. On making an abdominal examination we find the uterus larger than it was before the illness; the fetus is outlined with difficulty; the heart-sounds not heard—all due to bleeding into the uterine cavity.

The vaginal examination usually reveals some bleeding, though this may not be present; and there is inability to detect the placenta in the lower portion of the uterus, though a clot may simulate it. This examination will also inform one if the cervix is dilated or closed.

As abruptio placentae is most often treated for placenta previa, the differential diagnosis is important, as the methods of management of the two are entirely different. In placenta previa, we have a causeless, painless hemorrhage, with bleeding from the vagina, the severity of the symptoms corresponding with the external bleeding. The placenta may be felt in the lower segment of the uterus. On abdominal examination the outline of the fetus can be made out, the fetal heart can be heard, and the uterus will feel as a normal pregnancy; but in abruptio placentae we can rarely outline the fetus or hear the heart-beat; and the uterus is full, tight and painful to the touch. The clinical symptoms are more serious than the amount of external bleeding leads one to expect.

Abruptio placentae is said to occur more frequently in multiparae, but both of my complete cases have been in first pregnancies.

The treatment will depend upon the condition of the cervix and the gravity of the constitutional disturbance.

With an uneffaced cervix and an os not easily dilatable, and with urgent clinical symptoms, the abdominal cesarean section will offer the quickest and safest procedure, and will sometimes save the life of the baby; and if the uterus does not stop bleeding after its contents have been removed, extirpation of that organ can easily be done.

If the abruption comes on during labor, and especially is this true when only partially separated, we can often save both mother and child by hastening the delivery.

I have only briefly outlined abruptio placentae, having recently read a paper on this subject before the Medical Society of Virginia, which was published in the Virginia Medical Monthly, March, 1920. In that paper I reported a case of complete abruption in the thirty-fifth week of pregnancy in which recovery followed a cesarean section. I now wish to report a complete separation in the twenty-ninth week of pregnancy, delivery being made per vaginam.

Mrs. C. R. D., white, age 37, married one year, has had no miscarriages or other evidences of uterine disturbance. Her menstruations were regular at twenty-eight day periods, lasting three days. September 15, 1919, was the date of her last menses. The history as gotten from the Sheltering Arms Hospital was as follows: She was referred to the hospital by Dr. Redd. The patient was taken sick on Thursday, April 1st, about noon. She felt very weak and bad; about 6 P. M. she had intermittent cramps in the right side of the uterus and abdomen, and external bleeding about this time. The pain was so severe that Dr. Redd administered morphine. On the 2d and 3d of April she had very little pain and almost no bleeding. On April 4th she had severe pains, somewhat like "labor pains." with very little bleeding. On Monday, April 5th, she was brought to Richmond and admitted to the Sheltering Arms Hospital. Some bleeding occurred and there were regular labor pains during her removal to the hospital.

I saw the patient at about 1 o'clock, and upon making an abdominal examination, was so struck with the inability to outline the fetus and the tenseness of the abdomen, that I had her prepared for delivery without making a

vaginal examination as, if it should turn out to be placenta previa (which I doubted from information gained on abdominal palpation), I wanted to be prepared to control hemorrhage.

Vaginal examination disclosed the cervix to be entirely effaced; the os soft and easily dilated, and a clot was just inside the os. I inserted one finger in the os, and by Harris's method, in thirty minutes I had the os completely dilated. I then ruptured the bag of waters, and found the breech presenting. With a little traction on a foot, the uterus soon expelled a macerated fetus, apparently of about five months. I did not wait for the uterus to expel the placenta but removed it manually, which presented no difficulties, as it was completely detached. About half of a pint of old dark clots was removed from the uterus; there was no fresh bleeding at all, greatly to my surprise.

The placenta was covered, with the exception of a space of the size of a half dollar, with an old clot about a half inch thick and very black. The placenta was made up of numerous infarcts of varying degrees of thickness and color, indicating that this woman had had numerous hemorrhages into her placenta, until the fetus got so little nourishment that it did not grow to its full size. It also showed that thrombosis had taken place to such an extent that nature was enabled to stop the bleeding from the remaining sinus left. Had not this been the case I do not believe the woman would have lived from Thursday to Monday and then been able to take a six-mile drive in an automobile on such roads as we have around Richmond.

The patient has recovered and gone home, a little anemic but on a fair road to being a well woman. She had no elevation of temperature and very little lochia, but urinalysis showed a slight nephritis.

Both of my cases had a negative Wassermann; both of them were primiparae, and both had been married but a short time.

401 *North Allen Avenue.*

COMPLETE CIRCUMCISION IN CHANCROID BENEATH TIGHT PREPUCE AND MULTIPLE CHANCROIDS ON PREPUCE.*

By SAMUEL NEWMAN, M. D., Danville, Va.

The conservative text-book treatment in cases of chancroids situated beneath a long, tight prepuce, which cannot be retracted, is subpreputial irrigations with an antiseptic solution. When the chancroidal area beneath the prepuce is considerable, a dorsal, or two lateral incisions through the foreskin is advised, thus exposing the chancroids for inspection and local treatment.

The objection against complete circumcision in cases of multiple chancroids on the foreskin seems to be based on two considerations. First, the fear of lymphangitis; second, the fear of adenitis. The possibility of phagedena as a result of excising the chancroids is also stated. Theoretically, it is only true that in circumcision the lymphatic channels are laid open to the chancroidal virus or secretions as a result of which the lymphatic vessels may become hot, red, and very painful, and by the same process the septic material may pass to the glands in the groin, thus constituting a chancroidal "bubo."

However, management of chancroidal infections in the Clinic found conservative treatment inadequate and a too lengthy procedure. Since in the Clinic type of patient rest and quiet could not be insisted on, the prepuce was nearly always found to be edematous and tight and in many cases presented actual phimosis. In some cases patients with chancroidal infection would not return for daily treatments and, upon their next visit to the Clinic, the prepuce was found bathed in offensive secretions, irreducible and, occasionally, gangrenous. Proper compliance with directions for home treatment could also not be expected of that class of patients.

In cases of subpreputial chancroid where it could not be easily retracted, and in all cases of multiple chancroids around the preputial margin with profuse secretion, the plan of complete circumcision was adopted. The procedure was as follows: The penis was bathed in hot bichloride of mercury solution. A two per cent solution of novocain was used to produce local anesthesia and circumcision done in the usual manner. Catgut or plain silk was

*From the U. S. Government Clinic for Venereal Diseases.

used in interrupted suture. On the third day the patient was instructed to come to the Clinic for dressing. In all cases there was a great deal of edema about the penis. In a series of nine cases not a single one developed lymphangitis or adenitis. In one case circumcision was done several days after a bilateral inguinal adenitis had developed. In eight out of nine cases the line of suture became infected, but no sloughing occurred in a single instance. Usually the sutures would come out on the third or fourth day. Healing took place by secondary intention without undue scar formation or irregularity, the wound being treated every day or every other day. The shortest time it took to heal was eleven days, in one case of five preputial chancroids; the longest time was five weeks, in a case of three chancroids beneath a gangrenous prepuce. One patient was very anemic and probably tubercular, yet no phagedena followed the removal of many foul chancroids by circumcision.

Conclusion: In cases of multiple chancroids on a long prepuce where rest in bed cannot be insisted on, and in cases of chancroids beneath a tight prepuce where a dorsal or bilateral incision is indicated, complete circumcision will follow with no bad results and it will probably shorten the time required for treatment by the conservative method.

INDICATIONS FOR AND TECHNIC OF CAESAREAN SECTION.

By M. J. PAYNE, M. D., F. A. C. S., Staunton, Va.

The term Caesarean section (laparohysterotomy) is applied to the operation which consists in the extraction of the child through an abdominal and uterine incision. The terms vaginal Caesarean section and suprapubic Caesarean section are well understood and call for no special definition.

The indications for this operation are of three kinds, positive, relative, and elective.

1. Whenever the maternal or fetal dystocia is so great that it is impossible to remove either the living or dead fetus through the natural passages.

2. Whenever it is impossible to remove the living child through the natural passages. Embryotomy or craniotomy should be made illegal.

Relative indications for the operation of Caesarean section are somewhat broader and are not so clearly marked and defined as the positive indications, and are:

a. Whenever fetal delivery cannot be done successfully without inflicting great trauma upon the mother in the presence of a dead child. It is believed that the living child should never be purposely destroyed either by craniotomy or embryotomy; that no operation or method of delivery should be employed in which such forcible means of delivery would be employed as would endanger the life of the child and the life of the mother to a greater extent than Caesarean section.

b. Whenever a conjugate diameter is presented of three inches (7.62 cm.) with a living child, and two and five-tenths inches (6.35 cm.) with a dead child, the best operators agree that Caesarean section is the better procedure.

c. Pelvic deformities probably present the commonest indications for this mode of delivery.

d. Pelvic tumors of any kind.

e. Cervical atresia and malignancy of the cervix with the coexisting infection demand Caesarean section.

f. Eclampsia, placenta, praevia, and specific infections of the genital tract.

g. Abnormal development of the cervix, incapable of safe dilatation, either by natural or forcible means.

h. Osteomalacia.

i. Monstrosities, utero-fetal adhesions.

The elective group of indications for Caesarean section is broad and broadening each day. The child is often the greatest sufferer (Hirst) at the time of birth, and it may well be pointed out that the effects of injuries at birth are of great economic importance. In many instances, the child injured at the time of birth becomes a helpless afflicted dependent. Snow's statistics, based on almost a million and one-half births, show that two hundred and fifty thousand infants are lost annually in the United States during the first four weeks of infant life. Few subjects, then, are of greater importance, not only to the medical profession but to the people, than the question of obstetric education. The unskillful practice of obstetrics emphasizes, therefore, the urgent necessity for better education of obstetricians, and a more careful consid-

eration of the important elective group of indications for Caesarean section.

Lapthorn Smith (B. M. J.) believes that many of the lives lost by the "wait-and-see" method of treatment of eclampsia would be saved by prompt action. It is believed, also, that the same is true of placenta praevia. It is urged that all cases presenting for obstetric care should be carefully studied. Careful case histories should be obtained, proper examination of the urinary output made with renal tests in all doubtful cases, accurate pelvimetry, and fetal measurements or estimation (fetometry) be made. Fetal position should be carefully observed in all cases, and the absence or presence of placenta praevia should be confirmed by careful examinations. Obstetric judgment is difficult and much experience and study is necessary in order to gain sound obstetric judgment which is the best guide for the determination of any elective Caesarean section. A case should not go through the "test of labor" before determining the wisdom of resorting to Caesarean section. In all cases where one feels the necessity for waiting for "the test of labor," elective Caesarean section should be chosen. Five hundred and fifty cases, without a death, reported recently by one author, where the Caesarean was done within one hour after the first convulsion in eclampsia, demonstrated this operation to be one of the safest abdominal operations of modern times. All procedures, therefore, included under the term accouchement force as well as vaginal Caesarean section, pubiotomy, symphyseotomy, craniotomy, and embryotomy, must be discarded in favor of the simple, safe, and more easily carried out operation of modern abdominal Caesarean section.

The technique of Caesarean section may be carried out with but slight trauma to the mother, and with great safety to the child. The various methods of accouchement force (that is, forceps, version, craniotomy, embryotomy) are all attended by more or less violence or trauma to the mother, and, likewise, are accompanied by injuries to the child resulting in immediate death of the child or rendering the child helpless by reason of some condition brought about by the trauma incident to the delivery and persisting after the birth. The slighter injuries resulting from the various methods of accouchement force may affect the child remotely and give rise, in later life, to psychoses or mental and physical impairment not heretofore understood to be attributable to the injuries received at the time of birth. The writer, therefore, believes that the obstetric surgeon should choose Caesarean section in all doubtful cases rather than wait for the test of labor and then be compelled to resort to ill-advised or unadvisable methods of delivery.

The presence of physiological incompetence for labor is usually seen in those considerably beyond the usual age of primiparous women and are of the neurotic type, poorly nourished and presenting definite tissue changes more noticeable in the cervix and uterus. The patients, as a rule, have married rather late in life and are overweight, and give a history of abnormal menstruation, and some, also, show derangement in the formation of the internal secretions. The most striking evidence in the cases is the failure of the uterus to cause the child to descend in the last few weeks of pregnancy. One will find, in this class of case, that the uterine contractions are so slight as to be almost unrecognizable. A pathological condition of the uterine muscles or of the nerve supply may exist, and one cannot be sure of the existence of such a pathological condition by any ordinary examination. The use of pituitrin in this class of cases will be attended by great danger to the mother and disappointment to the obstetrician. Kosmak states, in a paper entitled "Conservative Treatment of Placenta Praevia," that, in a primipara presenting a rigid and only slightly dilated cervix, and the probability of a central placenta praevia, with the child at or near term and still in good condition (because the amount of bleeding has not been extreme) there is no question but that the abdominal Caesarean section offers the best method of delivery for the mother and the fetus. The elective Caesarean section should be carefully considered in all known cases of placenta praevia, for the reason so often expressed or experienced by obstetricians, that the hemorrhage may become, in a moment, alarming,—indeed, often fatal.

In the primiparous showing a slightly contracted pelvis, a large fetus, a lack of develop-

ment of the uterus, a physiological incompetency for labor, the obstetrician should not hesitate to elect Caesarean section, provided a competent operator is at hand. Likewise, the elective Caesarean section should be chosen whenever faulty positions of the child cannot be corrected and followed by safe delivery by the forceps or by version.

Davis states that "recovery from elective Caesarean section is often more speedy and complete than after a fatiguing and tedious labor. Mortality is no greater than after any other operation of equal importance."

Finally, the patient may be sterilizd, if such a course is considered advisable, and should indications exist for more radical surgery, e. g., removal of the uterus or the tubes and ovaries, the indicated operation may be completed without any added hazard.

TECHNIQUE.

The preparation for elective Caesarean section should include careful history taking and complete physical examination, including the blood, urine, and renal function tests.

The immediate preparation for the operation differs in no essential particular from that of any other abdominal operation.

1. The abdomen is opened through an incision in the mid-line, extending from one inch above the symphysis upward to not more than one inch above the umbilicus. Although the uterus is in front of the intestines, the usual care should be exercised in opening the abdomen not to wound the intestines.

2. The general abdominal cavity is protected by well placed towels wrung from warm salt solution, and the uterus is now opened by an incision in the mid-line of the anterior wall, extending from the contracting ring upward for about six inches. No haste is made and none is required, in making this incision as it is far better to proceed carefully, seizing the bleeding uterine vessels cut, and advancing until the cavity of the uterus is opened. The membranes may, in this way, be preserved until added towels are placed and the amniotic fluid may be absorbed, thereby preventing any fluid entering the abdominal cavity. At the moment the membranes are ruptured, an assistant should make firm and equal pressure on the fundus of the uterus in order to hold the uterus firmly against the abdominal wall.

The operator now inserts the hand into the uterus and preferably causes the fetal head to present at the incision while, at the same time, the assistant should make firm pressure through the abdominal wall upon the uterus and in this way assist in the expulsion of the child from the uterus. Care should be employed not to tear the uterine wall, as an irregular tear is difficult to close.

The child delivered is handed to an assistant. A few moments should now pass in order that the child may receive ample blood before the cord is clamped, cut, and then tied by the assistant.

Delivery of the placenta is accomplished by pressure through the abdominal wall directed against the fundus of the uterus and by very gentle and careful traction on the placenta or manipulation on the part of the operator. In case of the placenta praevia, the hand must be passed into the uterine cavity and the placenta carefully pushed away from its attachment avoiding any traction or pulling. This part of the operation should be gently and very carefully carried out.

The incision in the uterus is now closed by carefully placed interrupted stitches of chromic catgut No. 2, in three tiers: the first tier stitches include the peritoneal and muscular wall, but not the mucosa, and are placed about one-half inch apart. The uterine cavity is now sponged dry and the several stitches so placed are tied. It will be observed that the uterus will now contract firmly. An ampule of pituitrin S. should be given to cause the uterus to contract. The stitch first placed at either end of the incision in the uterus is left long temporarily and is used as a retractor to steady the uterus while inserting the subsequent sutures. The edges of the incision in the uterus may be seized about the middle of the incision by toothed forceps which are held apart, everting the edges of the incision while the deep sutures are placed. The manual pressure applied to the uterus by the assistant as the final stitch is tied should cause all blood to be expelled from the uterine cavity.

The second plane consists of half-deep sutures, inserted between the deep sutures for closer approximation. Finally, the seroserous or perito-peritoneal mattress stitches are placed, closing over the seemingly deeper

layers of sutures. The operator should endeavor to close the uterine incision so accurately as to make it impossible for blood or any fluid to escape from the uterus into the peritoneal cavity.

No attempt is made to dilate the cervical canal, as this is not only unnecessary (Williams) but unwarranted in light of the probabilities of infecting the uterine cavity. For the same reason, the placing of gauze or tube drainage through the cervical canal is unnecessary and unwise.

It is felt that the operation is not necessarily a "bloody one" as is often stated, for the technique, carefully carried out without undue haste, should show certainly no greater loss of blood than a normal delivery.

The towels are removed, and the abdominal cavity cleansed of any clots or fluid. The incision in the abdominal wall may be closed in any approved manner.

Comment. It will be observed that the uterus is not delivered from the abdominal cavity. The delivery of the uterus is unnecessary and, I think, adds to the risk of soiling the cavity.

In the following cases all mothers are living and all children living. Recoveries uncomplicated.

Case No. 2. King's Daughters' Hospital, Staunton, Va. Renal insufficiency. Functional test.

Case No. 3. King's Daughters' Hospital, Staunton, Va. Eclampsia in active convulsions and renal insufficiency.

Case No. 4. King's Daughters' Hospital, Staunton, Va. Placenta praevia.

Case No. 1. Contracted pelvis with placenta praevia complete.

"DR. GEO. ROSS, OUR PATRIARCH."*

By Thos. H. Hancock, M. D., Atlanta, Ga.

Responding to a request from our secretary to present a paper at this meeting, it occurred to me that I could not find a subject so suitable to the occasion as a few remarks on our beloved friend, the originator of the Surgical Corps of the old R. & D. R. R., and Chief Surgeon of the same for a number of years. His letter in reply to mine asking the privilege of referring to him and for data for preparing my paper is so characteristic of him that I take the liberty of quoting a portion of it as follows:

"My dear friend and co-laborer in the old days,

"Your letter, received by this morning's mail, was most pleasing to me, first, because it has been very long since I had been in touch with you by correspondence, and next, because your gracefully expressed desire to do me a purposed honor was most affective to that vanity which is common to old age, and especially to a disciple of Aesculapius, sidetracked, destined to sit on the stool of repentance for his conscious many sins of omission throughout his very busy life. * * * I received a communication a short time ago announcing the meeting of the Association of Surgeons of the Southern Railway System in Washington City, early in June, indicating a desire to have it the "biggest ever" and the program "the fullest ever and the best ever." How nearly my name may come to playing any part in the third of the noted trio of big things must be left to your demonstrated ability for giving interesting and often-times instructive readings of simple "case reports" with your comments thereon and conclusions drawn therefrom. I had been thinking rather seriously about that meeting and the temptation to be once again amidst the remnants of the "Old Guard that were so unfailingly loyal and true, as to elicit from Mr. E. B. Thomas, General Manager, the written declaration to me that the surgical department of the Richmond and Danville Railroad Company was the very best that he knew of in this country." Reflecting on your request for some bricks of which to build a structure from which you might introduce me to the many newcomers that have found attachment to that service which I originated I am sending you a copy of a talk entitled, "The Egostistical I," addressed to the Medical Society of Virginia at their semi-centennial session held at the Jefferson Hotel in this city at the end of October, 1919, which will give you the necessary information.

"I had thought of attending the Washington session and personally lifting up my voice once more in the nation's capitol before the Association of Surgeons of the Southern Railway System. You possibly remember my be-

* Address at annual meeting of The Association of Surgeons of Southern Railway System, in Washington, D. C., June, 1920.

ing called on to acknowledge the address of welcome of Commissioner Ross for that association in the 'long ago.'

"My failing vision and hearing, and the fact that I have reached the period of life when the 'grasshopper' is accounted a 'burden,' forces me to sit dreamily before the twilight fire and, gazing into the smouldering embers, say,

'My head is bent and my step is slow,
I sit at night when the fire burns low,
And seem to read in the ember's glow
That the time draws nigh when I must go
And sleep with the comrades of long ago.'

"Pardon my evidences of decrepitude; old age is voluble and drifty, but my affections for the friends of my younger days are as cherished as the beauty of the twinkling stars."

On one occasion he wrote me:

"You scared me off by promising to call on me to speak;
In making speeches you must know I am just a leetle weak.
Boarman and O'Brian though will be on hand I hear,
Both are pure Virginia boys and each have voices clear,
Courageous each in doing work, each fearless in a breach,
Test them on the sands of time, try either one in speech."

George Ross, M. D., (U. Va.) Captain and Associate Medical Director, Third Corps, A. N. Va., Lt. General A. P. Hill's Staff, Captain and Assistant Surgeon in Charge V. M. I. Cadet Battalion, Battle of New Market, May 15, 1864, Chief Surgeon of the old R. & D. Railroad Co., Member of the Medical Society of Va., author of Gathered Leaves, etc., the type of man that one may point out and say "I wish to be like him."

He says of himself that he has earned many dollars but has never hoarded one for the love of the dollar, that he spent them lavishly—often foolishly and recklessly, but that he spent them as a Virginia gentleman of the old time sort,

"I have proved that pleasures are like poppies spread,
Grasp the flower and the bloom is shed."

Selfishness has played no part in his life, but ambition has and he states that he has sailed his craft in treacherous waters. He has passed the four-score years and his strength has not been entirely labor and sorrow. He is the only living graduate of the medical class of the University of Virginia of 1861 and one of the two surviving graduates of the Virginia Military Institute class of 1859. His motto has been "Quae prosunt omnibus" which being freely translated reads, "Serve mankind." He states that after the battle of Bull Run (First Manassas), he witnessed the only hip joint amputation he ever saw and looked over the shoulder of the first woman doctor who ever trod the soil of Virginia, Dr. Mary Walker.

Without trespassing on your time too far I will mention only a few of the incidents that stand out in his life. After the war he was very poor and, after trying the role of a huckster and proving to his own satisfaction that he was a failure as a farmer, he returned to Richmond and commenced again the practice of medicine which he had abandoned for a time. Starting in a modest way, bringing in his own wood, walking to see his patients and attending to his work, he soon found himself again independent. His first patient, who was a negro, was charged a dollar but, when it was found that he had only the dollar, half of it was returned to him thus establishing a precedent of dividing fees.

He was one of the ten founders of the "University College of Medicine" and filled the chair of Obstetrics and I have heard that his tribute to the female pelvis was a classic. He was president of the International Association of Railway Surgeons and presided at the only session of that body ever held beyond our own boundaries, in Toronto, Canada, in 1898. He was appointed by the Canadian authorities as representative of the American medical profession to the British Medical Society in the city of Montreal, Canada, in 1899—the only gathering of that body of scientists ever held beyond the British Isles. Many years have glided by and he has been professor, surgeon, gynecologist, oculist, general practitioner and family physician. He states: "Many changes force themselves before my vision. The life of a doctor seems like the reading of a chart in a case of a typhoid fever patient. He zigzags up and down to the climax of his professional career, then zigzags down and up to the plane of his beginning. A pure character and lofty purpose are the bases of all things worth counting in man. They are the only qualities governing human action giving promise of enduring rewards in this life, and the only personal credentials one may venture to present in the Court of Final Assize."

As the shadows of the evening steal across his sky he is not as those without hope, for he honestly wears the square and compass and his trust is in God.

Clinical Reports.

REPORT OF A CASE OF MASTOIDITIS, WITH NECROSIS OF THE BONY LAMINA COVERING THE SIGMOID PORTION OF THE LATERAL SINUS.

By T. W. EDMUNDS, M. D.
and
G. B. DUDLEY, Jr., M. D.
Danville, Va.

The patient, a boy, aged ten, was referred to us and admitted to Edmunds Hospital about nine P. M., September 3, 1920. On examination immediately upon admission there was found a profuse, purulent discharge from the left external auditory meatus, and a small discharging fistula about the region of the left mastoid antrum. Temperature 102 F., Pulse 100, Respiration 24. Patient gave history of a discharging ear of three months' duration. There was tenderness on pressure in the mastoid region, but patient had suffered no pain in the ear or mastoid region. Urinalysis showed nothing of significance and a blood count was not made as our technician was away at that time. After the usual preparation, the operation was deferred until seven o'clock the next morning, as the patient was in good condition and not in pain.

First, the opening in the tympanic membrane was enlarged to insure thorough drainage. The usual mastoid incision was made, periosteum retracted and the hemorrhage controlled. A small discharging fistula extended through the cortex of the bone in the region of the antrum. The cortex around the fistula was easily removed with a curette and rongeur forceps. Hardly had the mastoid cells been reached when there was a profuse hemorrhage from the lateral sinus. The source of the hemorrhage was easily recognized by the volume of blood and the pulsations synchronous with the heart beat. Iodoform gauze was packed into the sinus cavity, and the mastoid antrum, as well as the aditus ad antrum into the tympanic cavity, were thoroughly curetted and cleaned out. Due to the profuse hemorrhage it was impossible to complete the exenteration of all the mastoid cells. However, as much of the cortex and as many of the cells as could be safely spared without causing further hemorrhage, were removed.

The wound was tightly packed, no closure whatever attempted, and a tight dressing put on. The packing from the sinus was removed on the second day after the operation and the wound packed daily at each subsequent dressing. Following the operation, the patient's temperature was never above normal, pain was insignificant and the recovery was uneventful. There was never any discharge through the external auditory canal following the operation and, after the fourth or fifth day, very little discharge through the mastoid opening. Patient was up and running about on the eighth day and discharged from the hospital on the tenth day following the operation.

Today, which is the fifteenth day after the operation, the mastoid wound is closed and the boy as strong and healthy as ever.

Summary: This case is reported by us not on account of the infrequency of the condition, but because of the great amount of pathological involvement with the few attending symptoms and the rapid recovery.

First: There was a necrosis of the lamina of bone separating the sigmoid portion of the lateral sinus from the mastoid cells.

Second: A profusely discharging purulent fistula had bored through the cortex of the mastoid bone to the exterior.

Third: Patient suffered no pain previous to the operation, and little subsequently.

Fourth: Temperature was never above normal following the operation.

Fifth: All of the distressing symptoms of sinus infection were absent.

Sixth: Speedy recovery of patient and cessation of discharge from a purulent ear of three months' standing.

Arcade Building.

THREE CASES OF PNEUMONIA IN WHICH PNEUMOCOCCIC ANTIGEN WAS USED.*

By R. E. MITCHELL, M. D., Richmond, Va.

Case No. 1.—Locomotive engineer, 35 years of age, had influenza at onset and developed pneumonia on the fifth day. He was seen in consultation with Dr. Call on sixth day, when both lungs were found to be involved and the outlook was very grave. Average temperature was 102-104 degrees; pulse 100-110; respiration 35-45. He was given 1 c. c. of pneumococcic antigen, repeated on the following day.

* Read at a meeting of the Richmond Academy of Medicine and Surgery, April 27, 1920.

On the third day of treatment, temperature, pulse and respiration were practically normal and the patient was feeling good. No other drug was used except heart stimulants. The prognosis had been uncertain from the beginning on account of the patient being luetic.

Case No. 2 was that of a railroad trainman who had influenza at the onset and developed pneumonia on the sixth day. Average temperature was 103-104 degrees; pulse 100-110; respiration 30-40. On the seventh day, the first injection of antigen was given and repeated every twelve hours for five injections. The temperature, pulse and respiration became normal and the lungs cleared up nicely. He later developed what was diagnosed as cholecystitis and died on the twelfth day with extreme jaundice and persistent hiccoughs, which had lasted continuously for three days before death. Dr. T. D. Jones saw this patient with me just before death and, I believe, will bear me out when I say that his pneumonia was relieved and death was due to other causes.

Case No. 3 was also a railroad trainman, 30 years old, who had lobar pneumonia from the onset. The first antigen injection was given on the second day and repeated every twelve hours for five injections. Average temperature was 103-105 degrees; pulse 110-120; respiration 35-45. After the third injection of antigen the symptoms all subsided except delirium, which continued until the fifth or sixth day. The lungs cleared on the sixth day and the patient was calling for food which he had refused previously. He was sitting up on the tenth day of illness.

All three cases were ushered in with the usual chill and rise of temperature, and were bona fide pneumonias, diagnoses being confirmed by consultation in all three. The results of the use of antigen were very apparent.

1301 *Porter Street.*

Discussion.

Dr. G. A. Ezekiel said that Dr. Mitchell's results from the use of antigen tallied with his own, namely, that after the third injection there was usually a fall of temperature to normal. The advantage of antigen over serum lies in not having to wait for the typing of the cocci.

REPORT OF A CASE OF FRACTURE OF THE PELVIS WITH AUTOPSY FINDINGS.

By N. F. RODMAN, M. D., Norfolk, Va.

C. Z., age 15 years, was admitted to the hospital January 16th, 1920, having been run over by an automobile truck. Examination showed a fracture through the left pubis near the symphysis and a fracture into the right sacro-iliac joint. At operation an extra-peritoneal rupture of the bladder and a transverse rupture of the urethra were found, with a large collection of blood posterior to and pushing the bladder forward. A supra-pubic cystotomy with drainage was performed.

On January 20th, a perineal urethrotomy with drainage was done in order to keep urine and discharge from the fragments of the fracture. At this time the patient was placed in a plaster cast with the thighs in abduction (spread eagle position). In this position the patient was fairly comfortable and the bowels, perineal and supra-pubic wounds could be cared for with ease. The supra-pubic drainage was connected with a suction apparatus and daily irrigations with a half of one per cent. hydrochloric acid solution kept down the deposits of phosphates fairly well.

On March 20th, the cast was removed and the fractures found fairly firmly united.

March 25th, a second perineal urethrotomy was done and an effort made to re-establish the urethra. After much difficulty a small catheter was passed through the urethra into the bladder. The supra-pubic drainage was kept up and most of the urine came through this tube.

On April 12th patient began to vomit and to complain of pain in the abdomen. The abdomen was tense, tender and distended. The temperature, which had been normal, rose to 101.4°. In spite of enemata and gastric lavage the patient continued to vomit large quantities of stercoraceous material. The urine which had varied in amount from twenty-five to forty ounces in twenty-four hours dropped to one dram in twenty-four hours. The next day a large mass was palpated on the right side posteriorly in the region of the kidney. A perinephric abscess was suspected and, under local anaesthesia, an incision was made posteriorly and a part of the kidney capsule stripped off, but no pus was found.

Hypodermoclysis, diuretics and stimulants

were given but the patient continued to grow worse and died of uremia on April 14th.

Post-mortem examination showed a dilated stomach and adhesions of the small intestines but no obstruction. The right kidney was about twice the normal size and was studded throughout with small abscesses and each calyx was filled with stones varying in size from a pin-head to a large pea. The right ureter was patulous and apparantly normal. The left kidney was about half the normal size and one section showed small stones in all of the calices and many small abscesses throughout its substance. The left ureter showed no abnormalities. The bladder was contracted but otherwise normal and contained no calculi. The fractures were firmly united and in good position.

I am indebted to Dr. Kirkland Ruffin, who did the operative work, for permission to report this case.

Medical Education

GRADUATE MEDICAL EDUCATION.

During the last year the Chairman of the Council, assisted by Dr. Louis B. Wilson, of the Mayo Foundation, Chairman of the Council's Special Committee on Graduate Medical Education, inspected all but a few of the graduate medical schools of the country, and their report is briefly summarized as follows:

1. Opportunities for American medical graduates to study in Europe are at present largely limited to short "courses" of lectures and clinical and laboratory demonstrations. Positions permitting individual study of, and responsibility for, the diagnosis and treatment of patients are properly filled by each country's own medical graduates.

2. In the United States opportunity for graduate study is sought (a) by those desiring to study for a few weeks or months, and (b) those desiring to study for several years.

3. The short-term graduate students—about 6,000 this year in the United States—are (a) general practitioners seeking courses in continuation of their undergraduate studies, and (b) partially prepared specialists seeking to perfect their technic, usually in some minor surgical field.

These two classes of graduates possess the following general characteristics:

Nearly all have practices, either general or more or less special, which they cannot leave for any considerable length of time; many are inadequately trained in the fundamental medical sciences; in the brief periods they can leave their practices, they are averse to spending much time on fundamentals, and, in most instances the time at their disposal is entirely inadequate to obtain even a proper start in the fundamental subjects. Many of them desire work in operative technic in surgery. A small proportion seek to study cases for clinical diagnosis. Many wish to be "crammed" and can afford to pay a reasonable fee for instruction.

The existing post-graduate schools take almost all applicants for short terms of study, though many do not enter because they cannot get the courses desired. University medical schools should provide opportunities for the better prepared men of these classes to combine diagnosis with treatment.

4. The long term graduate students—about 4,000 in the United States this year—are (a) those who wish to devote two or more years to study for practice in some special field, and (b) a small number who wish to prepare themselves for public health work or for teaching or research in the fundamental branches.

Opportunities for graduate students to prepare themselves by long periods of work in the clinical specialties are woefully lacking. Opportunities for long term courses in public health or in the fundamental branches exceed the demand, but fellowship stipends and ultimate financial rewards are too small to permit many without private resources to select such fields for their life work. The remedy is an adequate endowment for student fellowships and teaching positions.

On the basis of the inspection, the committee arrived at the following conclusions: (a) That the present facilities for graduate medical work in this country are entirely inadequate. (b) That the legitimate demand for work of this kind should be met. (c) That this demand, which has heretofore been made by proprietary schools, should be met by the universities. (d) That it would be desirable for fifteen or twenty strong university medical departments to consider the development of graduate medical departments. A suggested plan for such a school is as follows:

The graduate medical department should probably be independent of the under-graduate department, and with a separate faculty; an adequate teaching hospital and out-patient department; clinical laboratories for both out-patient department and hospital, and research laboratories. In addition to a general teaching hospital, it should have the control of special hospitals, such as eye, ear, nose and throat, orthopedic, infectious diseases, etc.

Provision should be made in the curriculum for at least five classes of students.

Group 1. For young men who have completed their medical course and their hospital internship, a course of probably three years, such as is given at the University of Minnesota. As far as possible these positions should be fellowships, carrying with them a living salary. These students, at the satisfactory completion of their work, should be given a degree of master of science or doctor of philosophy in surgery, ophthalmology, or whatever specialty they have been studying.

Group 2. For men who have completed their medical course and internship and have been in practice for three to five years, a course of at least a year of special training which, in addition to their practice, would be the equivalent of the three-year course of Group 1. These men, if they demonstrate their fitness, should be given the same degree as the men in Group 1.

Group 3. For men who have been in general or special practice a course of six months or more of training in some chosen special line. At the satisfactory completion of this work the student should be given a certificate.

Group 4. For a large group of practitioners short courses of from four or six weeks should be given in any field of work they desire. These courses should be known as practitioners' courses; they would furnish an opportunity for the practitioner to become more competent, but should not be regarded as preparing the practitioner for a specialty. No certificate of any kind should be given for this work.

Group 5. Certain courses should be planned also for practitioners who live near the medical school and could devote a few hours once or twice each week to some special subject without discontinuing their practice. This would enable practitioners to keep in touch with the newer developments in clinical and laboratory work.

As to compensation, men who devote their entire time to teaching in the graduate school should be paid adequate salaries. The compensation of the clinical teachers could be met from tuition fees. In the Graduate Medical School of Harvard we were told that about 75 per cent. of the fee went to the teachers and 25 per cent. toward general expenses. (*Report on Medical Education of A. M. A. for* 1920).

Public Health

Can The Anti-Spitting Law Be Enforced?

"Any one who has maintained a residence for a considerable period in a properly conducted sanatorium, where precautions are taken for disposing of sputum, is nothing less than horrified to observe the general carelessness of coughers and spitters throughout the state." This is how a former patient writes to the medical director of a state sanatorium.

There are adequate laws intended to prevent the spread of disease through indiscriminate spitting in public. The enforcement of these laws seems entirely dependent upon public sentiment. There was a very gratifying tendency, while the influenza epidemic swept this country, to give attention to the anti-spitting law. But, with the passing of the emergency, laxity on the part of our police officers became again the rule, and today, as through all the years reaching back to the time when history does not record to the contrary, walking carriers of disease spit and cough where they please.

The result is that disease, belonging to that classification known generally as the spray-borne family, is spread constantly to new victims. There was a time when mankind was prone to look upon sickness as a visitation of God. The truth is that mankind brings disease upon itself. Careless coughing and careless spitting are two of the most important channels through which a number of our most widespread human ills are passed from one individual to another.

Chief among the spray-borne family is tuberculosis. Heaven only knows how many innocent children may be infected with the tubercule bacillus by a single ignorant or wilfully criminal open case of this disease. The careful consumptive is not dangerous.

On the contrary it is safer to associate with a consumptive who takes the proper measures to cover his mouth when he coughs and to dispose of the sputum he raises than it is to associate with the average citizen.

Enforcement of the anti-spitting law will mean a tremendous step ahead in public health in Virginia. There has been in recent years a marked advance in general interest touching public health matters. More whole-time health officers are being appointed in communities heretofore served by part-time men. The extension work conducted by the State Board of Health and the Rockefeller Foundation has gone into an increasing number of Virginia counties. Does not the present seem a good time for health officers, city and county, to establish a more definite connection with the regular police officers, looking to improvement in the enforcement of the anti-spitting law?

Tuberculosis Wards in General Hospitals.

The State Department of Health estimates that there are 4,000 deaths in Virginia every year from tuberculosis. It is generally held that the average patient is bed-ridden or should be in bed the last twelve months of the duration of this disease. Therefore, to make adequate provision for far advanced cases of tuberculosis in Virginia 4,000 beds would be required. Instead of having 4,000 available for tuberculosis cases, there are only about 800 beds in the state.

Would it not be practical for general hospitals to establish tuberculosis wards? This would involve no very great added expense, either for construction or for administration. In most cases, porches already existing could readily be used for these cases. The bugaboo of phthisiophobia which, it might as well be admitted, had its day among some members of the medical profession as well as with the laity, has gone its way. Every physician and every intelligent layman now knows there is no danger to be feared from infection of this character when simple precautions are taken.

Tuberculosis wards in general hospitals would open the doors of these institutions to fellow beings as sorely in need of proper medical attention as any class of sufferers. The rewards to be expected from proper treatment of tuberculosis are as certain as may be expected from the treatment of other human ills. Intelligent medical attention, faithfully and persistently carried out, undoubtedly brings success.

Let it be remembered, too, that in a great many cases it is vitally important for proper treatment to be started immediately following diagnosis. Tuberculosis wards in general hospitals, where patients would be received and cared for after diagnosis and until they could be admitted to tuberculosis sanatoria, would have very great value in every community.

B. L. Taliaferro.

Rabies Appears to be Increasing in Virginia.

When a dog is suspected of having rabies, the surest diagnosis is to shut the dog up and watch him. If he lives eight or ten days after biting anyone, there is no need for further worry. If he dies or is killed, send the head to the State Laboratory, 12th and Clay Streets, Richmond, Va., for examination, or if located nearer to Washington, send the head to the Hygienic Laboratory.

When sending a head, pack it in ice and ship by express or special delivery, parcel post. Brain tissue decomposes rapidly and many heads reach us in summer too decomposed to examine.

Usually the head is only examined microscopically, but where the case is clinically very suspicious, the failure to find Negri bodies is not regarded as conclusive. In these cases animal inoculation is made, so that it is important to send full information with the head.

The State Board of Health still provides free Pasteur treatment for those unable to pay it, but any physician may now give the treatment himself. The treatment is shipped in convenient syringe packages ready for use at a cost of $20.00. The new dog law provides that "in case of any person being bitten by a mad-dog he shall recover from such fund the costs of necessary treatment, not to exceed two hundred dollars."

Aubrey H. Straus,
Bacteriologist, State Laboratory.

The Truth About Medicine

During August the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:
Armour & Co.:
Corpus Luteum Tablets—Armour 5 grains.
Diarsenol Co.:
Sodium Diarsenol
Sodium Diarsenol 0.15 Gm. Ampules

Sodium Diarsenol 0.3 Gm. Ampules
Sodium Diarsenol 0.45 Gm. Ampules
Sodium Diarsenol 0.6 Gm. Ampules
Sodium Diarsenol 0.75 Gm. Ampules
Sodium Diarsenol 0.9 Gm. Ampules.

NEW AND NON-OFFICIAL REMEDIES

Sterile Solution of Lutein—H. W. D.—Each cubic centimeter contains the water-soluble extract of 0.2 Gm. lutein—H. W. D., freed of protein in physiological solution of sodium chloride. For a discussion of the actions and uses of ovary preparations, see New and Nonofficial Remedies, 1920, p. 201. The solution is supplied in the form of Ampules Sterile Solution of Lutein—H. W. D., containing 1 Cc. Hynson, Westcott & Dunning, Baltimore.

Ovarian Residue-H. W. D.—The residue from the fresh ovary of the hog, after the ablation of the corpus luteum. Ovarian Residue is used for the same conditions as the entire ovarian substance, but is claimed to have the advantage of being somewhat more stable. Ovarian Residue-H. W. D. is supplied in the form of 5 grain tablets only. Hynson, Westcott & Dunning, Baltimore (Jour. A. M. A., Aug. 7, 1920, p. 378).

Benzyl Benzoate-Seydel.—A brand of benzyl benzoate complying with the tests and standards of New and Nonofficial Remedies. For a discussion of the actions, uses and dosage of benzyl benzoate, see New and Nonofficial Remedies, 1920, p. 48. Seydel Manufacturing Company, Jersey City, N. J.

Tablets Anterior Pituitary-Armour 5 grains.—Each tablet contains 5 grains of desiccated pituitary substance (anterior lobe). Armour (See New and Nonofficial Remedies, 1920, p. 207). Armour & Co., Chicago.

Tablets Ovarian Substance-Armour 5 grains.—Each tablet contains 5 grains of Ovarian substance-Armour (See New and Nonofficial Remedies, 1920, p. 202). Armour & Co., Chicago.

Riodine.—A 66 per cent. solution in oil of an iodine addition (see Iodine Compounds for Internal Use, New and Nonofficial Remedies, 1920, p. 143). Riodine is supplied only in the form of Riodine Capsules 0.2 Gm. E. Fougera & Co., Inc., New York (Jour. A. M. A., Aug. 14, 1920, p. 477).

PROPAGANDA FOR REFORM

Digitalis Therapy.—Thanks to the development of appropriate methods of physiologic assay, digitalis preparations can now be evaluated in terms of their real potency, and products can be prepared which are stable and constant as the pharmacopeial standards demand. Physicians have learned, largely through the leadership of Cary Eggleston, how to estimate digitalis dosage on the basis of body weight. As the possibility of overdosage can be recognized by the occurrence of symptoms such as nausea, or by the electro-cardiograph, it becomes possible to push the dosage speedily to the limit of tolerance, with corresponding therapeutic advantage. There remains, however, the important need of differentiating more clearly the patients for whom digitalis is actually indicated. (Jour. A. M. A., Aug. 7, 1920. p. 417).

Internal and External Antisepsis.—Despite the numerous efforts to demonstrate the efficacy of this or that chemical agent or drug as a gastro-intestinal antiseptic, the outcome has been that the supposed benefits were due to catharsis in most instances rather than to any real effect upon the bacteria in situ. Similarly, J. F. Norton, in an investigation made for the Council of Pharmacy and Chemistry, has shown that the value of "antiseptic" and "germicidal" soap depends on the soap and not on the antiseptic or germicide contained in them. In fact, ordinary toilet soap and the green soap used by surgeons were more efficient, evidently because the added antiseptics and germicides interfered with the lathering qualities of the soap (Jour. A. M. A., Aug. 14, 1920, p. 478).

The Bethlehem Laboratories, Inc., Preferred Stock.—Physicians in various parts of the country have received advice that they have been selected to share in the profits of the Bethlehem Laboratories, Inc., New York City. The company claims to control the manufacture of hyclorite, a product accepted by the Council on Pharmacy and Chemistry. These physicians are given an option to purchase four shares of the company's stock for four hundred dollars. The directorate of the Bethlehem Laboratories, Inc., is stated to be composed of business men of Bethlehem, Pa., the president of the General Laboratories, Madison, Wis., a "prominent physician" of Bethlehem, and J. Jay Reilly, Philadelphia, a "prominent Philadelphia surgeon and consulting chemist to several large manufacturing drug concerns." Hyclorite, manufactured by the General Laboratories, Madison, Wis., was accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies because at the time that it was considered, it was marketed in accordance with the Council's rules. The investment proposition which the Bethlehem Laboratories makes to physicians is an insult to decent medical men. When physicians are interested in products they prescribe or recommend, the public does not get a square deal. It is against public interest and a degradation of scientific medicine for physicians to be financially interested in the products they prescribe (Jour. A. M. A., Aug. 14, 1920, p. 493).

Quinin and Urea Hydrochlorid for Local Anesthesia.—Quinin is a protoplasmic poison, and tissue necrosis may be caused by strong solutions of quinin salts. That this deleterious reaction actually does occur and has mitigated against the general use of quinin and urea hydrochlorid is confirmed by the report of the Committee of the A. M. A. on the Advantages and Disadvantages of Local Anesthesia in Nose and Throat Work. The committee reported that the only local anesthetic that produces edema and sloughing is quinin and urea hydrochlorid. The committee found that, as this local anesthetic has been abandoned in other fields of medicine, so it has been discarded for use in nose and throat operations. Two physicians who published articles extolling the value of quinin and urea hydrochlorid in nose and throat operations, now state that they discontinued its use, though they had not published this unfavorable conclusion (Jour. A. M. A., Aug. 21, 1920, p. 559).

Value of Schick Test.—The Schick test, which can readily be applied to a large number of persons, makes it possible to differentiate those immune from those susceptible to diphtheria. It also facilitates the attempt to increase the number of the immune by suitable prophylactic toxin-anti-

toxin injections. By the use of the Schick test and anti-toxin injections, institutions have been kept free from cases of diphtheria for years (Jour. A. M. A., Aug. 21, 1920, p. 545).

Sukro-Serum and Aphlegmatol.—About two years ago, American newspapers contained accounts of an alleged cure for pulmonary tuberculosis "discovered" by Prof. Domenico Lo Monaco, of Rome, Italy. Reports indicated that this so-called Italian Sugar Cure for Consumption consisted of the intramuscular injection of solutions of sucrose (saccharose—cane sugar). Now the Council on Pharmacy and Chemistry reports on two proprietary preparations based on the "sugar cure" which are being exploited in this country: Sukro-Serum and Aphlegmatol. Sukro-Serum is marketed by the Anglo-French Drug Company. A circular issued by this company described Sukro-Serum as a "Sterilized Solution of lacto-glucosaccharose." By reading this circular to the end, however, one learns that "Sukro-Serum" is not a "serum" in the ordinary sense, but apparently it is a solution of ordinary sugar (sucrose). Aphlegmatol is sold by G. Giambalvo & Co. The circular enclosed with a package of this preparation contains the following, with reference to the composition: "A solution of Hydrats of Carbon after the formula of Professor D. Lo Monaco, Director of the Institut of Physiological Chemistry of the University of Rome." The preparation was found to contain a reducing substance, probably glucose, amounting to about 7.4 per cent. After hydrolysis, 55.5 per cent. of glucose was found. The advertising for Aphleg
pears to be the work of those ignorant of the English language. These two preparations appear to be nothing more than concentrated solutions of sugar. It is probable that a small amount of cane sugar might be inverted into glucose and fructose, but experiments have shown that cane sugar subcutaneously administered in the small amounts used in this instance is largely excreted in the urine unchanged. Less is known about galactose, but the evidence available would indicate that galactose is largely excreted in the urine unchanged when given subcutaneously. Glucose would be absorbed as such, and the amounts under consideration, used by the system much the same as when given by mouth (Jour. A. M. A., Aug. 21, 1920, p. 556).

More Misbranded Nostrums and Drug Products.—The following products have been the subject of prosecution by the federal authorities under the Food and Drugs Act: Tonic Remedy, a nostrum of the alcoholic type was misbranded because the label failed to show the quantity or proportion of alcohol present. Big G., said to be "A Compound of Borated Goldenseal," was essentially a watery solution of boric acid and berberin. Plantation Sarsaparilla consisted essentially of potassium iodid, alcohol, plant material, sugar and water. Magic Eye Salve consisted essentially of zinc oxid, benzoic acid and petrolatum. Femenina consisted essentially of alcohol, sugar, water and unidentified material with indications of valerian. Balsam Copaiba, Salol Compound, and Methylene Blue Compound (The Evans Drug Mfg. Co.), were capsules which were below standard in strength and purity. Pabst's Okay Specific consisted essentially of volatile and fixed oils, plant extractives, including cubebs, balsam of copaiba and buchu, and more than 29 per cent. of alcohol. Liebig's Diarrhoea Cordial consisted essentially of a solution of morphin sulphate, catechu, tannin, oil of cassia, oil of peppermint, sugar, alcohol and water (Jour. A. M. A., Aug. 28, 1920, p. 623).

Silver Salvarsan.—According to a report of the Medical Research Committee of Great Britain, silver salvarsan is apparently a molecular combination of arsphenamine and silver in some form. The substance is on trial, and its promiscuous use at this time would be ill advised. In the United States no license for the sale of silver salvarsan has been granted by the Treasury Department and hence it may not be sold in interstate commerce (Jour. A. M. A., Aug. 28, 1920, p. 626).

Iodex and Liquid Iodex.—The A. M. A. Chemical Laboratory examined Iodex in 1915 and found that it contained only traces of free iodin, though claimed to contain "5 per cent. therapeutically free iodin." Even the total quantity of iodin was shown to be only about one-half of the 5 per cent. claimed to be present as free iodin.

An analysis of the Iodex sold in 1919 demonstrated that the preparation is essentially the same as that sold in 1915, that is, it was found to contain no free iodin and only about three-fifths of the total amount of iodin claimed. The laboratory points out that the synonym used for Iodex, "Ung. Iodi, M. and J." is in obvious conflict with the Food and Drugs Act in that, though sold under a name recognized in the U. S. Pharmacopeia, it does not conform to the standards for Ung. Iodi. of the pharmacopeia. The laboratory further reports that Liquid Iodex, sold with the claim that it is a preparation having the properties of free iodin, is a reddish liquid with an odor like oleic acid, containing but little, (0.16 per cent.) free iodin and only about three-fifths of the total iodin claimed (Reports of the A. M. A. Chem. Lab. 1919, p. 104).

I. G. O.—According to Dr. H. S. Lambdin, Peru, Kansas, I. G. O. is: saturated solution of iodin gas in petrolatum at 130 degrees with oil of eucalyptus. The heat of the body liberates the iodin and it is absorbed as free iodin. The A. M. A. Chemical Laboratory reports that the sample of I. G. O. was a black ointment, green in thin layers, with a slight odor like crude petroleum, containing but 0.59 per cent. of free iodin (Reports of the A. M. A. Chem. Lab., 1919, p. 106).

Proceedings of Societies

Richmond Academy of Medicine and Surgery.

The regular bi-weekly meeting of the Academy, held September 28, was called to order by the President, Dr. Garnett Nelson.

Drs. Wm. Tate Graham and Neilson H. Turner were elected to fellowship, and Dr. W. T. Oppenhimer, Jr., was nominated for fellowship.

Dr. John S. Weitzel read a paper entitled *Fluid Injections by the Peritoneal Route*,

which was discussed by Drs. W. L. Peple and Weitzel.

Dr. Thos. S. Shelton read a paper entitled *Etiology and Treatment of Asthma*, which was discussed by Drs. J. M. Hutcheson, W. H. Higgins, Garnett Nelson and Shelton.

The following delegates and alternates were elected to the House of Delegates of the next meeting of the Medical Society of Virginia: *Delegates*, Drs. Mark W. Peyser, T. D. Jones, W. H. Higgins, Garnett Nelson, R. C. Bryan, R. C. Fravel and Fred. M. Hodges. *Alternates*, Drs. P. D. Lipscomb, C. C. Hudson, W. L. Peple, W. H. Porter, R. D. Garcin, M. E. Nuckols and S. N. Michaux. The papers and discussions, noted above, will be published in a subsequent issue of the VIRGINIA MEDICAL MONTHLY.

MARK W. PEYSER,
Secretary.

The Botetourt County Medical Society,

The regular quarterly meeting of this Association was held in Farmville, September 21, the president, Dr. D. L. Harrell, of Suffolk, in the chair, and the secretary, Dr. R. L. Raiford, in his accustomed place. The attendance was good and the program interesting. The subject for general discussion was "Toxemia of Pregnancy." Several other papers were also read at the afternoon session and, after a supper tendered the visitors by the Chamber of Commerce of Farmville, a public meeting was held which was largely attended by students from the Normal school and citizens. At this time the subject of Preventive Medicine was discussed by Drs. E. M. Mann, Kenbridge, H. T. Hawkins, Kenbridge, and R. L. Raiford, Sedley.

Dr. W. L. Yarn, of Cumberland C. H., was elected a member and Norfolk was decided upon for the next place of meeting.

Botetourt County Medical Society

Was recently re-organized and the following officers elected: President, Dr. M. T. McCulloch, Troutville; vice-president, Dr. P. K. Graybill, Fincastle; secretary-treasurer, Dr. E. W. Dodd, Buchanan. In addition to the above, the enrollment to date is as follows:— Drs. W. C. Barker, Buchanan; C. A. Davis, Eagle Rock; J. M. Spencer, Lignite; R. T. Givens, Glen Wilton; A. W. Hammond, Amsterdam; W. N. Breckinridge, Fincastle, and J. K. Simmons, Nace.

Drs. P. K. Graybill and E. W. Dodd were elected delegate and alternate, respectively, to the meeting of the Medical Society of Virginia in Petersburg.

E. W. DODD,
Secretary-Treasurer.

The Augusta County Medical Association,

At its regular meeting, in Staunton, October 6, elected Dr. C. C. Jones delegate, and Dr. J. B. Catlett, alternate, to represent the Association in the House of Delegates at the Petersburg meeting of the State Society. Papers were read by Drs. Charles Minor Blackford and Alex. F. Robertson, Jr. Dr. H. M. Wallace, of Greenville, is the new president.

A resolution was passed favoring the proposed organization of the *Valley of Virginia Medical Society*, to be composed of the counties of Rockbridge, Alleghany, Augusta, Rockingham and Frederick.

C. C. JONES,
Secretary.

The Southwestern Virginia Medical Society,

At its semi-annual meeting in Bristol, September 29 and 30, appointed Dr. F. H. Smith, of Abingdon, delegate to the Petersburg meeting of the Medical Society of Virgnia, and Dr. J. C. Motley, also of Abingdon, alternate. New officers of the Society, elected at this meeting, are: President, Dr. W. R. Rogers, Bristol; vice-president, Dr. E. E. Watson, Salem; and secretary-treasurer, Dr. Elbyrne Gill, Roanoke. Pulaski was selected for the place of the next meeting, May 11 and 12, 1921.

A. B. GREINER,
Secretary-Treasurer.

The Tazewell County Medical Society,

At its last meeting in August, entertained the McDowell and Mercer County, West Virginia, Medical Societies. Interesting papers were read by Dr. F. H. Smith, Abingdon; Dr. S. D. Hatfield Iaeger, W. Va.; and Dr. O. A. Hare, Bluefield, W. Va. Dr. H. B. Frazier, Graham, was elected president, and Dr. Frank Pyott, Tip Top, secretary. Meetings will be held quarterly.

The Fairfax County Medical Society,

At its annual meeting in August, elected the following officers for the ensuing year:— President, Dr. John Smallwood, East Falls Church; vice-presidents, Drs. J. B. Bogan, Washington, D. C., and John Zerbee, Fairfax; recording secretary, Dr. W. P. Caton, Fairfax; treasurer, Dr. F. M. Brooks, Swetnam; and corresponding secretary, Dr. O. H. Coombe, Washington, D. C.

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EDITOR
ALEX. G. BROWN, Jr., M. D.
G. H. WINFREY, Business Manager.

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Editorial

Patriotism in Medical Education.

Virginia is about to consider a great educational problem which must be solved. If solved patriotically and rightly, the state may face the future of this question with confidence. If left unsolved and allowed to remain as it is, the people of the state will suffer. So the proper solution of the question of medical education demands the patriotic consideration of the physicians of this state. The time is at hand. The reorganization and readjustment of the old to meet the demands of the new age, now beginning, is right upon us. The solution of the qestion should be influenced by no petty or narrow motives. Little men, with little ideals, with little vision, with littleness in any form, must not be permitted, for a moment, to stay the advance of the great movement for better medical education in the state of Virginia. Sentiment, precedents, old-ties, on the one hand and personal advantage, personal interests, on the other, must not be allowed to operate, in combination or separately, to check the movement to secure for the state and section one medical school of the best type.

There is no place, now, for a second rate medical school. The public, in the light of modern science, has every right to get the very best medically trained doctor possible to get. No class of Virginians knows the full significance of this need better than the doctors of this state. With this knowledge, and having a committee appointed by the state medical society to look into the merits of the whole question, this society, it is hoped, will take a definite stand on the matter, determining to support to the uttermost the movement for a medical institution that will stand abreast of the best in this country. This is no visionary scheme. Virginia has all the essentials or can secure all the essentials for a Great Medical School.

Note what The Carnegie Foundation for the Advancement of Teaching on Medical Education in the United States and Canada (Bulletin number Four) stated in 1910 about the reconstruction of medical education in the South:

"*Greater unevenness must be tolerated in the* south;* proprietary schools or nominal university departments will doubtless survive longer there than in other parts of the country because of the financial weakness of both endowed and tax-supported institutions. All the more important, therefore, for universities to deal with the subject in a large spirit, avoiding both overlapping and duplication. An institution may well be glad to be absolved from responsibilities that some other is better fitted to meet. Tulane and Vanderbilt, for example, are excellently situated in respect to medical education; the former has already a considerable endowment applicable to medicine. The state universities of Louisiana and Tennessee may therefore resign medicine to these endowed institutions, grateful for the opportunity to cultivate other fields. Every added superfluous school weakens the whole by wasting money and scattering the eligible student body. None of the southern state universities, indeed, is wisely placed: Texas has no alternative but a remote department, such as it now supports at Galveston; Georgia will one day develop a university medical school at Atlanta; Alabama, at Birmingham,—the university being close by, at Tuscaloosa. *The University of Virginia is repeating Ann Arbor at Charlottesville; whether it would do better to operate a remote department at Richmond or Norfolk, the future will determine.* Six schools are thus provided; *they are sufficient to the needs of the section just now.* The resources available even for their support are as yet painfully inadequate: three of the six are still dependent upon fees for both plant and maintenance. It is doubtful whether the other universities of the south should generally offer even the instruc-

*The south includes eleven states, viz., Virginia, Kentucky, North Carolina, South Carolina, Florida, Georgia, Tennessee, Mississippi, Louisiana, Arkansas, Texas.

tion of the first two years. The scale upon which these two-year departments can be now organized by them is below the minimum of continuous efficiency; they can contribute nothing to science, and their quota of physicians can be better trained in one of the six schools suggested. *Concentration in the interest of effectiveness, team work between all institutions working in the cause of southern development, economy as a means of improving the lot of the teacher—these measures, advisable everywhere, are especially urgent in the south.*"

"Basal Metabolism."

One may well think of respiration and circulation as one mechanism when contemplating the fundamentals of metabolism. The blood carries the activator of respiration and upon this respiratory action depends the intake of oxygen and carbon dioxide elimination. Complex chemical processes taking place in the body tissues, as the cells carry on the transformation of food-elements into heat and energy in the body, are indeed too intricate for present discussion. But "basal metabolism" is a term that endeavors to express the lowest ebb of metabolism. This naturally is found in the body when its activities are as near as possible suspended both as related to exercise and the complete digestion of food. Normally, in-take of food, muscular movement, nervous excitation or stress, increase metabolism. This increases a demand for oxygen.

The respiratory-circulatory mechanism of the body, through complex adjustments, enables the body to increase its metabolic level. In the circulatory mechanism the flow of blood is increased by (1) increasing heart rate per minute, (2) raising the blood pressure, and (3) adequate vascular contractions and dilatations of blood vessel channels in various parts of the body. The lungs get larger volumes of blood through the pulmonary vessels. The aeration of this more rapid flowing procession of red-blood-cells is met by an increased oxygen tension in the air cells and carbon dioxide tension in the air cells must be so low that the hemoglobin reaching the air cells through venous blood in greater amount will diffuse in to the air of alveolar spaces. To accomplish this, the next step in the mechanism is brought about by increase of rate and depth of respiration.*

*Read: Peabody, F. W. Oxford Medicine, Vol. 1, part 5.

Through this "respiratory-circulatory mechanism" of the body, in certain pathological states, increased action is demanded. Febrile diseases and hyperthyroidism are the common conditions that are characterized by increased metabolism while there is also an increase of metabolism rate in diabetes, anemia and advanced nephritis. To illustrate, typhoid fever shows an average metabolism increase of 40 per cent. over normal; anemia an increase of 7 to 33 per cent.; exophthalmic goitre, 69 to 83 per cent:—after thyroidectomy the basal metabolism may fall 4 to 6 per cent. below normal.

Prevent Heart Disease.

It is not a question of public hygiene and inoculation. It is not a question of heredity. The question of prevention of heart disease goes back in childhood to the contagious diseases of that period. The prevention of infections of childhood and the personal hygiene of the individual mouth and throat will do a great part in checking heart disease of youth. The rheumatic heart of youth is in large degree the result of bacterial infections of the throat and mouth following upon attacks of tonsillitis and secondary arthritis. With this comes the endocarditis which cripples the auricular ventricular mechanism and which brings about cardiac arrhythmia and myocardial hypertrophy. Further, the condition of the teeth influences the matter of endocarditis because from this source the endocardial lining of the heart frequently receives its primary implantation of micro-organisms. The teeth may also serve as a primary focus to the tonsillitis which, in its turn, serves to transmit the bacterial agent to the heart.

Heart disease of late life may follow upon syphilitic or more chronic focal infections of the mouth and throat. Syphilis particularly, in its early secondary stage, frequently affects the heart and bloodvessels. About the aortic valve and in the aorta, hyperplastic growth of tissue centers; and, at this area, in the fourth or fifth decade syphilis cripples the heart with a more or less characteristic pathology.

So, too, during this period, and later, these chronic focal infections of the teeth and tonsils may serve as the primary focus for a chronic myocarditis with the resulting cardiac weakness or misfunctionation. At this time, also those types of heart disease resulting from

over-eating, alcoholism, and mechanical effort, appear.

The cardio-vascular renal cases of adult and advanced life, falling in this group, can only be prevented by careful regulation of the habits and diet of early life. Men and women, too, acquire habits of eating and habits of life in the first four decades, which, continued through the five decades, bring them to the premature termination of cardio-vascular disease.

Doctors' Accounts.

This issue of the Virginia Medical Monthly marks the close of the first year of its history under the ownership of the Medical Society. It is impossible to tell at this time whether it has been a success or failure financially. The past twelve months have been hard on all publications; probably more have discontinued publication or merged with others than at any other period in our history. One Richmond daily has gone out of existence entirely and another has sold out to one of its neighbors—becoming really an afternoon edition of the morning daily. Probably other cities in Virginia have seen the same thing happen to their dailies. On account of the non-payment of dues by members of the society we are not in a position to say what our financial condition is. It is probable that many will pay up before the society meets and others at the meeting. Members will be assured that every legitimate effort will be made to collect the money now owing the society—both the dues for 1920 and all arrearages. Stamped envelopes and checks—all made out and ready for signature—were mailed members this month and the response should be prompt. It is necessary to remind the members of the society that we must have not less than one thousand dollars monthly to meet regular expenses. Printers do not wait to collect from us.

We are not at all pessimistic about the journal. It is the spokesman for almost the entire medical profession of the state; it is the organ through which the state society will some day wield its proper influence in medical and health affairs in the state; it brings to the busy practitioner the best thought and the best achievement in medicine and surgery which our ablest men can produce; doing this work, it will continue as an exponent of the ability of the medical profession of this state. The more or less incidental matter of sufficient revenue to meet expenses is up to the business manager; hence this constant call for money.

We expect to receive checks from several hundred members this month. The seriousness of the situation demands that every member who has not done so should today send in his check. Why not do it now?

G. H. Winfrey.

Lost Membership.

Don't risk the loss of your membership in your state society. On it depends your membership in your local society; on it depends your membership in the American Medical Association; on it depends, largely, the rating the world gives you as a physician. You can lose your membership by being put out for gross misconduct or for failure to pay your dues. The Secretary-Treasurer is required to report to the Executive Council the members who have failed to pay the annual assessment for one year, and it is also required that their names be published. Why not see that your name is omitted from this list?

Membership in the society is growing—largely due to the activity of component societies. The time is short but enough is left to call a meeting of the doctors in your county and reorganize. Physicians who are interested in this important work, but who are very busy, should have notices sent out from the office of the society. We are equipped for the work and will do it promptly. As we build up the component organizations, the state society will take care of itself. Carry on!

G. H. Winfrey.

News Notes

Medical Society of Virginia.

We want this to be the biggest and best meeting ever. May we count on your help? There is nothing which so much adds to the success of a meeting as to have a crowd. Accommodations are ample in the form of half a dozen hotels and a number of restaurants. It would be better, however, to make reservations, where possible, at least a week in advance, or you may not be able to secure room in the hotel of your choice. Meetings of the Society are to be held in the Petersburg High School, on West Washington Street, this building affording space for the general sessions and various committee meetings. Have your mail sent to you care of the Medical

Society of Virginia, as there will be both post-office and telegraph facilities. Every detail looking to the comfort and pleasure of the visitors has been arranged by the committees.

The following are members of the Executive Committee: Dr. F. J. Wright, chairman; Dr. J. M. Harwood, secretary; Dr. H. A. Burke, in charge of headquarters and exhibits; Dr. W. F. Drewry, publicity; Dr. J. Bolling Jones, hotels; Dr. E. L. McGill, transportation and automobiles; Mr. H. C. Myers, finance; Mr. W. M. Martin, entertainments.

The Ladies' Executive Committee includes Mrs. F. J. Wright, chairman; Mrs. J. M. Harwood, secretary; and Mesdames H. A. Burke, Wm. F. Drewry, J. Bolling Jones, R. A. Martin, H. Carter Myers, Mrs. W. H. Patteson, and Miss Anne M. Cooper.

Cards and official badges will be issued members and guests at the Registration desk. You are requested and expected to bring the lady members of your family and the ladies' committee will look after their pleasure and comfort while you are attending the scientific sessions. No entertainment will be so formal as to require your dress suit, so come prepared to enjoy yourself in an informal way.

If you had not planned to attend, do it now and, when the local committee's card reaches you, send your acceptance. You will enjoy the change and should feel fully repaid for the time taken from your work. Come and renew old friendships. There is no tonic like this for making one feel young.

Delegates To Medical Society of Virginia Meeting.

To the time of going to press, we have been advised by only 18 societies of the appointment of delegates and alternates to represent them at the Petersburg meeting of the Medical Society of Virginia. It is not yet too late to send their names that they may be seated at the Petersburg meeting. The Society wants every County in the State to be represented. According to the By-Laws, each component county society is entitled to "one delegate and one alternate for each thirty-five members or major fraction thereof" or if the membership is less than thirty-five, it shall have at least one delegate and one alternate. Let each society which has not yet sent us names of delegates and alternates, take this as a personal request to let us have them promptly.

The names of delegates received to this time are:

Arlington County—Dr. Richard N. Sutton, Clarendon.

Augusta County—Dr. C. C. Jones, Staunton.

Botetourt County—Dr. P. K. Graybill, Fincastle.

Buckingham County—Dr. John Randolph, Arvonia.

Dinwiddie County—Dr. F. J. Wright, Petersburg.

Fairfax County—Dr. John Smallwood, East Falls Church.

Isle of Wight County—Dr. Rea Parker, Smithfield.

Louisa County—Dr. H. S. Daniel, Louisa.

Lunenburg County—Dr. L. H. Apperson, Victoria.

Lynchburg and Campbell County—Drs. James Morrison and John W. Carroll, both of Lynchburg.

Nelson County—Dr. A. A. Sizer, Schuyler.

Richmond Academy of Medicine and Surgery—Drs. Mark W. Peyser, Thos. D. Jones, Wm. H. Higgins, Garnett Nelson, Robt. C. Bryan, R. C. Fravel and Fred M. Hodges, all of Richmond.

Roanoke Academy of Medicine—Drs. Geo. B. Lawson and J. R. Garrett, both of Roanoke.

Southampton County—Dr. G. H. Musgrave, Boykins.

Southwestern Medical Society—Dr. F. H. Smith, Abingdon.

Warren-Rappahannock-Page County—Dr. Giles B. Cook, Front Royal.

Warwick County—Dr. Otis T. Amory, Newport News.

Wise County—Dr. C. B. Bowyer, Stonega.

The Medical College of Virginia,

Richmond, opened this year with a much larger enrollment than last year and with thirteen women in the medical department. Twenty additions were made to the personnel of the faculty, in the school of medicine, as follows:

H. S. Thatcher, M. D., professor of pathology.

C. V. Scudder, M. D., associate professor of pathology.

Margaret M. Hoskins, Ph. D., associate professor of anatomy. (In charge of the work in histology and embryology.)

William F. Sharpe, M. D., associate in clinical pathology.

R. D. Caldwell, M. D., associate in anatomy.

J. H. Baird, M. D., associate in surgery.

R. A. Morrison, M. D., associate in medicine.

A. C. Sinton, M. D., associate in surgery.
T. F. Wheeldon, M. D., associate in orthopedic surgery.
W. B. Blanton, M. D., instructor in medicine.
H. R. Master, M. D., instructor in nervous and mental diseases.
H. A. Brady, M. D., instructor in genito-urinary surgery.
E. C. Bryce, M. D., assistant in otology, rhinology and laryngology.
W. W. Falkener, M. D., assistant in pediatrics.
J. F. Fulton, M. D., assistant in medicine.
T. E. Hughes, M. D., assistant in otology, rhinology and laryngology.
Sydney Trattner, M. D., assistant in opthalmology.
N. H. Turner, M. D., assistant in opthalmology.
A. I. Dodson, M. D., assistant in genito-urinary surgery.
C. E. Llewellyn, M. D., assistant in medicine.

The University of Virginia

Opened its centennial year on September 20, with the largest initial registration in its history. There was an enrollment of 115 in the medical department, four of whom were women.

Announcement has been made by chairman of the faculty committee in charge of the affair that May 31 to June 3 inclusive, have been the dates definitely set for the Centennial Celebration at the University of Virginia. Alumni of the school, throughout the country, will be much interested in this event and a large gathering is expected.

Association of Medical Officers of Southwest Virginia.

On March 4, doctors of Roanoke and Salem, Va., who served in the World War, had an informal dinner and gathering, at which time plans were discussed looking toward forming a permanent organization. At a meeting on July 9, these plans were perfected and all medical men residing in Southwest Virginia, who served in the Great War, and who are eligible for membership in the American Legion, were invited to join. This association is for the purpose of cementing and perpetuating the ties formed during the war. There are to be no dues but it is planned to have dinners or informal gatherings about twice a year. At this time, the association numbers over sixty men. Dr. Hugh Trout, of Roanoke, was elected temporary president, and Dr. Jos. T. McKinney, also of Roanoke, was elected temporary secretary.

Diphtheria Antitoxin Should be Accessible.

With the return of this season, when an increase in the incidence of diphtheria may be expected, the State Health Department urges the necessity of every community being provided with an adequate supply of diphtheria antitoxin. The lives of many children have been jeopardized by delay in treatment incident to having to order the antitoxin from some large center.

Dr. R. W. Browne,

Formerly of Norfolk, Va., is now stationed at Boston, in the U. S. Public Health Service.

New Building For Doctors In Washington.

There has just been completed in Washington, D. C., the Medical Science Building, which is located on Vermont Avenue and L Street, Northwest. It has eleven floors and is fireproof and was built principally for physicians and dentists. The offices are arranged in suites consisting of reception room, laboratory and private offices, and each suite is equipped with electricity, gas, water and compressed air.

Dr. Henry Clay Carson,

Who practiced at Sugar Grove, Va., for some years, is now located at Andover, Va.

Jefferson Medical College Memorial.

On October 7, a memorial was dedicated by the alumni of Jefferson Medical College, Philadelphia, to the graduates from that school, who made the supreme sacrifice during the World War. This college was represented in the war by 1,147 graduates, of whom twenty-five lost their lives. The memorial was in the form of a bronze tablet engraved with the names of the men who died, and has been placed in the main entrance to the college at Tenth and Walnut Streets.

Dr. J. Fulmer Bright,

Formerly of the Richmond Grays, this city, has been chosen colonel of the First Regiment, Virginia Infantry, National Guard.

Changes At C. & O. Hospital, Clifton Forge.

Dr. J. M. Emmett, formerly of this city but recently connected with the C. & O. Hospital, at Huntington, W. Va., has been named surgeon-in-charge of the C. & O. Hospital at Clifton Forge, Va.

Dr. L. E. Walton, who recently located at Low Moor, Va., has accepted the position of first assistant in surgery to Dr. Emmett.

Twin City.

From an item noticed in the *New York Medical Journal*, Akron, Ohio, may at present be termed the "twin city," as according to recent reports it lays claim to the largest proportion

of twins to other births of any city in the union. In 1919, forty-six pairs of twins were born, and to August 31, of this year, forty-one pairs had already been born. Of the 1920 twins, sixteen pairs are male, twelve female, and thirteen mixed.

Dr. Buckner M. Randolph,

Of Washington, D. C., announces the removal of his office to 2010 R Street, Northwest, that city.

Senior Surgeon Claude H. Lavinder,

Of the U. S. Public Health Service, an alumnus of the University of Virginia, Medical School, has been named an assistant surgeon general and is now in charge of the division of hospitals and relief.

University Of Georgia To Have Public Health Department.

A School of Public Health and Hygiene is to be opened in connection with the Medical Department of the University of Georgia, at Augusta.

Dr. Moses C. Sycle,

Of this city, has been appointed by Governor Davis as a member of the Board of Visitors of the Virginia School for the Deaf and Blind, at Staunton, for the unexpired term of four years ending July 1, 1922, to fill the vacancy caused by the resignation of Col. David H. Leake.

Dr. John A. Drake,

Clarksville, Va., was a recent visitor at the home of his sister in this city.

Dr. H. T. Hawkins,

Recently of Meherrin, Va., has located in Kenbridge, Va., where he is associated in practice with Dr. T. C. Harris.

Drs. R. K. Foxwell and K. W. Kinney,

Who located in Washington, D. C., after service in the Medical Reserve Corps, U. S. A., announce removal of their offices to the Medical Science Building, Vermont Avenue and L Street, Northwest. Their practice is limited to neuro-psychiatry.

The Crowell Urological Clinic,

Charlotte, N. C., has purchased the property adjoining the Charlotte Sanatorium, for the purpose of erecting on it a thoroughly modern hospital and clinic building of at least 100 rooms.

St. Elizabeth's Hospital,

Richmond, has been reorganized, and "group medicine" has been established. Dr. J. S. Horsley is head of the Department of General Surgery and Gynecology; Dr. A. I. Dodson is Associate Surgeon and Urologist, Dr. Warren T. Vaughan is head of the Department of Internal Medicine.

Dr. Vaughan is from the faculty of Harvard Medical School and is an associate editor for the Department of Internal Medicine on the "Journal of Laboratory and Clinical Medicine." Dr. Warren Vaughan, who is Dr. Horsley's partner, is a son of Dr. Victor C. Vaughan, who for many years has been dean of the Medical Department of the University of Michigan. Miss Van Dyke and Miss Tholens, both graduates of Wellesley, have charge of dietetics and of the laboratory work in clinical pathology under Dr. Vaughan.

According to the "group" arrangement, the departments of Surgery and Medicine are of equal dignity, and patients will be charged only one fee for all professional services.

Dr. John W. Carroll

And family returned to their home in Lynchburg, Va., in September, after spending their vacation at Atlantic City and in Maine.

Dr. B. B. Bagby

And family, of West Point, Va., went to New York for a visit, the latter part of September.

Married—

Dr. Henry Grant Preston, of Fairmont, W. Va., a graduate of the class of '20, University of Virginia, Medical School, and at present an interne at the University of Virginia Hospital, and Miss Vera Spangler Fritts, of Front Royal, Va., September 25.

Dr. Edwin W. Buckingham, Jr.,

Of Lynchburg, Va., and a graduate of the class of '18, Medical College of Virginia, expects to leave very shortly for missionary work in China.

Fire At North Carolina Hospital.

On the 25th of September, fire completely destroyed the laundry building at the State Hospital for Insane, at Raleigh, causing a loss estimated at $100,000. Besides the building and laundry machinery, the fire consumed a large part of the hospital's bed linen and practically

all the blankets used in the epileptic department.

Dr. Jos. T. McKinney,

Of Roanoke, Va., has recently returned from the Mayo Clinic. While there, he attended the meeting of the American Roentgen Ray Society, which held meetings at Rochester and Minneapolis, Minn.

To Improve The Public Health.

The Fourth Annual Red Cross Roll Call will take place from November 11th to 25th. The main purpose for which the funds will be expended is preservation of the public health and prevention of disease. This campaign is to be carried on by means of a system of Health Centers and Public Health Nurses, who will disseminate thoroughly information of all kinds on health, and will leave no stone unturned in their purpose of aiding the medical profession of the country in its efforts to lower the death rate and decrease disability.

Help the Red Cross in this common aim, by adding your name to the membership list for 1921.

Dr. Thomas G. Hardy

Has bought one of the old homes in Farmville, Va., and reconstructed it into a small hospital for private use.

Dr. Charles A. Pfender,

Washington, D. C., is now located at 1206 Eighteenth Street, Northwest.

Dr. John W. Dillard

Recently returned to his home in Lynchburg, Va., after a visit to Nantucket and Boston.

Dr. and Mrs. R. H. Woolling,

Pulaski, Va., have returned home after an extended motor trip to the Eastern cities and Canada.

O'Reilly Hospital Discontinued.

By direction of Secretary of War Baker, the O'Reilly General Hospital, at Oteen, N. C., was discontinued as an army hospital on October 15 and transferred to the Public Health Service.

Dr. Loren E. Cockrell

And family, of Reedville, Va., recently enjoyed a motor trip through some interesting sections of this State.

Dr. W. A. Brumfield,

Who has been for several years connected with the State Health Department, has accepted the position as medical and physical director of Virginia Polytechnic Institute, Blacksburg. He will be full-time health officer and professor of hygiene, and will conduct a physical examination of all boys entering the college.

Dr. W. F. Henderson will continue as college physician.

The Shenandoah Hospital,

Roanoke, Va., recently opened a new addition, giving it a capacity for 85 patients. It has an obstetrical section, with modern delivery room, nursery and incubator, and is thoroughly up-to-date in all respects. Dr. I. H. Hurt, a graduate of Jefferson Medical College, in the class of '19, is resident physician at this hospital and is also associated in practice with his uncle, Dr. I. E. Huff.

Medical Library.

The Roanoke Academy of Medicine is organizing a Medical Library, to be conducted in conjunction with the public library of that city. Funds have been subscribed to maintain a file of the more important journals. This will be supplemented later by a number of new books.

North Atlantic Tuberculosis Conference.

As we go to press, there is a two days' meeting of this Conference being held in this city. More than 200 delegates representing the District of Columbia and seven states, are in attendance. Some of the most eminent specialists of America, in this branch, are among the speakers, and many subjects of great interest are up for discussion. Several social features have been introduced so as to bring the members together and have them get better acquainted.

"Fake" Orange Beverages.

According to Public Health Reports, it has recently come to light that there are a number of "fake" orange beverages marketed, which contain no orange juice and are lacking in the organic acids and vitamines which give medicinal value to the genuine orange juice. They are in most instances only sweetened carbonated water, flavored with a little oil from the peel of the orange and colored to imitate orange juice. Frequently the labels contain

statements, in a more or less inconspicuous place, that the beverage contains no orange juice, but this is not taken in by the unsuspecting purchaser.

In prescribing orange juice for children, it would not be amiss for physicians to recommend to parents that the best way to get the orange juice is to buy the fruit and squeeze out the juice.

The American Public Health Association,

Meeting in San Francisco, last month, elected Dr. Mazyck Ravenel, professor of preventive medicine at University of Missouri, Columbia, Mo., president, and re-elected Mr. A. W. Hedrich, of Boston, secretary.

The American Electrotherapeutic Association,

At its meeting in Atlantic City, in September, elected Dr. Byron Sprague Price, of New York, president, and Dr. A. Bern Hirsh, of New York, secretary.

The Southern Medical Association

This year holds its meeting in Louisville, Ky., the dates being November the 15th to 18th, inclusive. Dr. E. H. Cary, of Dallas, Texas, is president. The program includes papers on such a variety of subjects that something will be found to interest each member. Louisville, always noted for its hospitality, promises an unusually attractive program socially.

Dr. Robert B. Shackelford,

Who recently located at The Plains, Va., after service in the medical reserve corps, has joined the Army with the rank of major in the medical corps, and is at Station Hospital, Camp Lee, Va.

To Care For Soldiers With Tuberculosis.

The Bureau of War Risk Insurance plans to spend a large part of its fund of $46,000,000 in the rehabilitation of men and women who served in the late war and are now disabled on account of tuberculosis. A 1,000-bed sanatorium has recently been opened for soldiers at Johnson City, Tenn., and a 500-bed sanatorium is soon to be opened at Dawson Springs, Ky., but it is estimated that nearly 14,000 beds will be ultimately required. The Bureau wishes to secure utilized buildings that might be rearranged to fit the needs of tuberculous patients, in accordance with the standards of the American Sanatorium Association. If any one knows of such buildings in Virginia, the War Risk Insurance Bureau would like to know of them.

Dr. A. L. Winfield,

Of this city, has moved his offices to 501 West Grace Street.

Hospital For Shell-Shocked Men.

The new government hospital at Perryville, Md., where the U. S. Public Health Service will provide special care and treatment for shell-shocked soldiers, was opened on the second of this month, with the transfer from the temporary hospital at Cape May, N. J., of over 100 patients. At this time, the Service has under treatment over 12,000 discharged soldiers suffering from shell-shock and other mental disorders. Of these, 5,578 are in hospitals operated by the Service, and the remainder have been placed in hospitals where proper care and treatment are provided under contract.

Mother and Child,

A magazine concerned with their health, made its initial appearance in June. It is a bi-monthly and is published by the American Child Hygiene Association, in Baltimore. The articles are interesting and instructive and deal with the treatment and prevention of diseases common to children. An exceedingly interesting article in the October issue is on "The Children of Central Europe." It tells of hordes of homeless children "over there," who wander from home to home and town to town, and of what is being done to help this class and of the still greater need for help in this field.

An Institute on Venereal Disease Control and Social Hygiene

Will be conducted in Washington, D. C., November 22 to December 4, 1920, by the U. S. Public Health Service. Applications for admission will not be accepted after November 15, without special consent of the director. No tuition fee is to be charged, though many of the most prominent specialists will be members of the faculty. Those eligible for admission are officers of State and city boards of health, clinicians, laboratory technicians, nurses, social workers, police matrons, police-women, superintendents of eleemosynary institutions, judges and probation officers of courts of domestic relations and juvenile courts, chiefs of police, medical officers of commercial institutions, urologists, dermatologists, gynecologists, neurologists, psychologists and officers of medical

and sociological organizations. Any other persons applying will be expected to present credentials signed by State or city health officers

Attend Richmond Fair.

Among the doctors who came to Richmond for the State Fair, were Dr. Isaac Peirce, of Tazewell, and Drs. J. H. Ayres and H. D. Lilliston, of Accomac.

Anesthesia Record.

The National Anesthesia Research Society has adopted a uniform chart which has been recommended for use in all hospitals. It has been devised so as to embrace all essential points in the administration of an anesthetic and to leave such a record as will speedily show the surgeon, anesthetist and nurse the history in the case, including the blood pressure, respiration, color of skin, and reaction of the pupils. The Association will print and distribute this chart at cost to all hospitals using it. If interested, write, T. T. Frankenberg, executive secretary, 16 E. Broad Street, Columbus, Ohio.

The Charlotte County Medical Society

Reorganized August the 6th, and elected the following officers: President, Dr. C. W. Tucker, Drakes Branch; vice-president, Dr. Ray A. Moore, Phenix; secretary-treasurer, Dr. William R. Martin, Charlotte C. H.

The Shenandoah County Medical Society

Was reorganized June 30, and Dr. William F. Driver, New Market, was elected president and Dr. F. C. Downey, Edinburg, secretary. Dr. Jerome Braun, of New Market, was elected to membership.

Lunenburg County Medical Society.

Present officers of the Lunenburg County Medical Society are:—President, Dr. Robt. Ozlin, Dundas; vice-president, Dr. H. T. Hawkins, Kenbridge; secretary-treasurer, Dr. Edwin M. Mann, Kenbridge.

The Association of Surgeons of the Chesapeake and Ohio Railway

Met at White Sulphur Springs, W. Va., September 17, with an attendance of 87 medical men from Virginia, West Virginia, Ohio, Kentucky and Indiana. Dr. W. T. Oppenhimer, Richmond, chief surgeon of the road, opened the meeting, and several quite interesting papers were read and discussed. The election of officers was as follows: President, Dr. E. H. Griswold, Peru, Ind.; vice-presidents, Drs. A. S. Brady, Greenup, Ky., Chas. A. Ray, Charleston, W. Va., and H. U. Stephenson, Toano, Va.; secretary-treasurer, G. E. Meanley, Richmond. The following are members on the executive board:—Drs. Jas. I. Rathburn, Russell, Ky., C. C. Coleman, Richmond, Va., J. Ward Mankin, Washington, D. C., C. E. Wamsley, Newport, Ky., R. K. Buford, Hansford, W. Va., and H. L. Carter, Danville, W. Va.

Doctor's Office For Rent.

Two rooms and hall, 3418 East Broad Street, Richmond. Light, heat and water. Has been used for a doctor's office for past two years and is the best location on Church Hill. $20 per month. Garage in rear. Address Richard W. Jones Co., Inc., 116 North 8th Street, this city. (Adv.)

For Sale—

Good home and unopposed busy country practice. Between Richmond and Fredericksburg. Convenient to school, churches and railroad. Collections and climate excellent. Terms reasonable and can be arranged to suit. Good reason for selling. If interested, address "Dr. J.," care this journal. (Adv.)

Obituary Record.

Resolutions on Death of Dr. Lewis C. Bosher.

The Richmond Academy of Medicine and Surgery, at a meeting on September 14, 1920, passed the following resolutions:

The Richmond Academy of Medicine and Surgery learns with deepest sorrow of the death of its honored member and former president, Dr. Lewis Crenshaw Bosher. His career had been one of which the medical profession of the city may be justly proud. He was born in Richmond, received his academic training in Richmond and was a degree man of Richmond College. He graduated from the Medical College of Virginia in Richmond, was ambulance surgeon of the Richmond City Almshouse Hospital, and, after several years spent in hospitals in New York, returned to Richmond to practice, becoming associated with Dr. Frank Cunningham, one of Richmond's most eminent and beloved physicians. He was thus, in a very particular sense, a Richmond doctor.

His merit and ability were soon recognized, and he quickly forged to the head of his profession, and among his clientele were numbered the most substantial and distinguished members of our community.

Notwithstanding his early and continued success, he was never diverted from the scientific and progressive side of medicine. His labors at the Medical College of Virginia in the anatomy halls, in the dispensary, in the lecture halls and clinics, won for him the devotion and admiration of his

students. His presence always commanded respect; he was possessed of an unusually full and ready information on both the scientific and practical side of medicine; his lectures always showed careful preparation, and he occupied a peculiarly elevated position in the estimation of those who learned medicine from him.

He had always been a prominent figure in the medical circles of Richmond. At the Medical College of Virginia he occupied at various times the chairs of anatomy, principles of surgery, surgery and genito-urinary surgery.

He advocated the amalgamation of the two schools and was active in bringing it about. Many of the preliminary meetings were held in his office for a series of nights extending over a rather prolonged period.

In the development of Richmond hospitals he did probably his best work. Years ago he was active in the Old Dominion Hospital; later in the Memorial Hospital, where he became president of the corporation; and, finally he was one of the organizers of Stuart Circle Hospital, of which he was also a president. An interesting and characteristic feature of his hospital connections was the fact that he never sought personal advancement or aggrandizement, but, rather, the elevation and efficiency of the organization as a whole.

His ability was particularly marked in the field of surgery, to which he devoted his greatest attention and to which he owed his reputation; but it has often been said of him that he was the best-rounded physician in Richmond and approached the patient from all sides. He was not only a surgeon of distinction, but, also, a good doctor. His information was always full, particular and accessible; his opinions were practical and his judgment sound.

Not only was his reputation of the highest at home, but, too, it extended throughout the United States, in all the larger cities of which he had personal friends and admirers among the best of the profession. The esteem in which he was held is evidenced by the large number of exclusive national societies of which he was an honored member. He was president of the Southern Surgical Association and also of this Academy.

But as exalted as were the ability and professional standing of Doctor Bosher, it is probably as a man that he will be most revered and honored. An outstanding quality was his modesty. He never sought to put himself forward, and whatever honors were placed upon him were the results of pure merit. He was a hard worker and never shirked the responsibility of any position he held. He carved out his own future, and none of his achievements was the result of luck or of fortuitous circumstances.

He was clean and honest. Nothing else could endure in his presence. It occurred to none to speak ill of him. He was generous. In the establishment of the various enterprises with which he was connected he always gave freely of his means; and many have been the young whom it was his pleasure to help. In all of these things he was a model which the young doctor would do well to follow and the older men to emulate. As a result of such an exalted personal and professional life he had few enemies and all men spoke well of him. In this he was unique. His character stands before us as a monument that will endure. We believe that he has entered into his reward.

Be it resolved, That the foregoing expression of our appreciation of Doctor Lewis C. Bosher be spread upon the minutes of the Academy, that a copy be sent his family, and that it be printed in the Richmond newspapers and in the Virginia Medical Monthly.

(Signed) CHARLES R. ROBINS,
Chairman.
J. FULMER BRIGHT,
JNO. N. UPSHUR,
WM. S. GORDON,
GEORGE ROSS,
Committee.

Dr. Robert Burley Cullers

Died at his home in Bentonville, Va., August 28, from chronic Bright's disease. He was 56 years of age and studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1893. He had been for a number of years a member of the Medical Society of Virginia. His wife and several children survive him.

Dr. William Hervey Remine,

Formerly of Washington County, Va., died at Letterman Hospital, San Francisco, Cal., August 13, aged twenty-five years. He studied medicine at Medical College of Virginia, from which he graduated in 1916, and later joined the Medical Society of Virginia through the Bath County Medical Society. He was an officer in the medical reserve corps of the army.

Dr. Robert N. Younger,

Of Pen Hook, Va., died August 5, from cerebral hemorrhage. He was forty years of age and a graduate from the Maryland Medical College, Baltimore, in 1904. Dr. Younger was a member of the Medical Society of Virginia.

Dr. Thomas L. Settle

Died at his home, Paris, Va., August 26, at the age of 84 years. He was graduated in medicine from the Kentucky School of Medicine, Louisville, in 1857.

Dr. Horace C. Robles,

Who for a time made his home in Alexandria and Fredericksburg, Va., and was later health officer of Dougherty County, Georgia, died in a hospital at Albany, Ga., September 14, as a result of an accident. He was 30 years of age and a graduate of the Atlanta Medical College in 1914.

Dr. Elisha Averett Jenkins,

Formerly of Natural Bridge, Va., died at Saranac Lake, N. Y., September 18, at the age of 46 years.

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Original Communications

BACK TO THE OLD STANDARD OF ETHICS.*

By PAULUS A. IRVING, M. D., Farmville, Va.
President of Medical Society of Virginia.

Forty years ago I became a member of the Medical Society of Virginia and, to have been elected to the high office of President of this honored organization, is the realization of an ambition that I have cherished for many years and for which I wish to express my high appreciation, while feeling very sensibly my unworthiness when compared with the many distinguished men who have preceded me.

The title of my address is "Back to the Old Standard of Ethics," and, in presenting this subject for your consideration, you, I am sure, will pardon a little ancient, but interesting history—interesting to me because in my early professional life I knew personally many of the distinguished men who were prominent in the organization of the Medical Society of Virginia, and I wish you to know that it was a privilege and an inspiration to have known and enjoyed the association of such a splendid coterie of physicians as graced and adorned the profession of that day.

The Medical Society of Virginia was organized in the city of Richmond, November 2, 1870, in the old Chemical Lecture Room of the Medical College of Virginia, where ninety-two (92) physicians from different sections of the State, principally from Richmond, Norfolk, Lynchburg, Petersburg and Staunton, assembled for this purpose. From an examination of this list of ninety-two, I find only two that are now living, viz: Drs. E. J. Moseley and J. N. Upshur, both of Richmond.

Dr. James B. McCaw, of Richmond, presided over the meeting as chairman. Dr. McCaw was my old professor—I vividly recall him, a tall, erect, stately, commanding figure, charming in manner, elegant in address and diction—a real chevalier; a man of strong personality; one who would attract and command attention in any assemblage; graceful in speech, a charming conversationalist; a man of high honor and integrity who never compromised a principle.

The Society perfected its organization by the election of Dr. R. S. Payne, of Lynchburg, as its President, a man of the Old School, such as is described by Ian McLaren. There were several notable Vice-Presidents, viz.: Drs. J. S. Wellford, of Richmond; John Staige Davis, of the University of Virginia; Wm. Selden, of Norfolk; T. E. Brown of Alexandria; V. T. Churchman, of Augusta County, and Hugh McGuire, of Winchester. What a galaxy of names! What they represented in the profession and stood for in their respective communities is difficult to find words to express. Dr. Hugh McGuire, father of our late Dr. Hunter McGuire, one of the three most distinguished physicians and surgeons in the State, representing the Valley; Dr. Rawley White of Chatham, uncle of our late esteemed and beloved Dr. Rawley White Martin, representing the South Piedmont Section, and Dr. John Peter Mettauer, of Worsham, Prince Edward County, representing the Southside; these men were known far and wide, enjoyed a large clientele from Virginia and adjoining states, did a splendid work and service, and further, did advanced surgery for that day and time, many of their appliances and instruments being made at the country blacksmith's anvil. I never saw any of these save Dr. Mettauer, who, possibly, was the most distinguished and most widely known. He, for a few years, filled the chair of surgery in the University of Maryland, but he did not like city life so came back to his home in Virginia. His was a striking figure. A man of commanding presence, of many and peculiar idiosyncrasies, a most

*Presidential address before the fifty-first annual meeting of Medical Society of Virginia, in Petersburg, October 26-29, 1920.

unique character. He always wore a high hat which he rarely removed from his head—in the crown of which he carried several catheters! Diseases of the bladder was his specialty, his favorite treatment or prescription for this trouble being an injection of 20 to 30 grains of nitrate of silver to the ounce. His usual treatment for hemorrhoids and fissure-in-ano was a piece of brimstone trimmed cone-shaped, with which he would forcibly dilate the sphincter, stretch the rectum, get in his carriage and, like Jehu, drive hastily away. He operated for everything—cataracts, etc.—without an anesthetic.

Landon B. Edwards, then of Lynchburg, was secretary of the first meeting, and was continuously elected to this office from 1870 to November, 1910—save one year, 1883, when he was defeated by a faction, his friends not being aware that a fight would be made against him. He was easily elected the following year, 1884, and continued in this office without opposition until November, 1910, serving 39 years, when he died, beloved and honored by the entire profession of the State. Dr. Edwards was a native of Prince Edward County. So highly was he revered and esteemed by the Medical Society of Virginia, to which he almost gave his life work, often spending his own money to advance its interests, that at a meeting of the Society held in Roanoke, October, 1909, the last meeting of the Society he attended, when it was evident that he could not last many months, a purse, or rather a bag of gold, containing a thousand dollars was presented to him as a testimony of their love and affection. I promulgated this movement and was largely responsible in raising this testimonial to my old friend, to whom I was greatly attached.

The Medical Society of Virginia has continued to meet every year since then, gradually increasing in strength, membership and influence, until now we have over 1800 members—the largest medical society in any state in proportion to the medical population, there being from 2300 to 2400 physicians in the State of Virginia, the membership changing each year by deaths and removals. The Medical Society of Virginia is responsible for all of the advances and reforms thrown around the profession in Virginia today.

In 1871, at the second meeting, in Lynchburg, the State Society passed a resolution calling upon the legislature to establish a State Board of Health, which law was passed in 1872, but since the act carried no appropriation, it was practically null and void. By persistent efforts, however, and the influence of the Society, in 1892-93 a State Board of Health was established with simply enough appropriation to begin a campaign of education and to keep the subject before the people and the profession, the appropriation being at first $1,000.00 and afterwards raised to $2,000.00. The State Board of Health was again the consideration of the legislature in 1907-08 and was then put on a substantial basis by an appropriation of $40,000.00 per annum, and is now doing a splendid work in preventive medicine.

In 1874 the question of establishing a Medical Examining Board was discussed, but it was not until 1885 that this board was established, which since that time has accomplished a great work in raising the standards in academic institutions and in medical colleges, thus enabling us to keep out of our State, charlatans, quacks and irregulars. Up to this date, 1885, anyone who declared himself a doctor, whether he possessed a diploma or not, and paid his license fee, could practice medicine in Virginia. Such a law was imperatively necessitated by the fact that Virginia was fast becoming the dumping ground of other states where irregulars were being forced out by higher standards and requirements.

The law for the higher education of the druggist originated in our State Society and a few years later the Pharmacy Board was established at the suggestion of this society, throwing the safeguards we have today around the dispensing of medicines. Advances in medical education along all lines—lengthening of the terms of medical colleges, more rigid entrance requirements, increase in laboratory facilities and equipment, and better regulated hospitals for clinical instruction, all are due to the influence of the Medical Society of Virginia. Today a diploma is worth 50% more than when I graduated. In my day, a one year course of nine months or a two year course of six (6) months each, was the term, with but little laboratory and few hospital facilities or requirements. A young doctor entering upon his work at this time is much better furnished and equipped for his work from laboratory, clinical and hospital standards, and should deem himself exceedingly fortunate in enjoying such facilities, privileges and advantages.

I shall never forget how helpless and at sea I felt when I first began my career as a doctor without having had any bedside instruction!

The repeal of the license tax on doctors, so recently accomplished, and other reforms which the scope of this address will not permit me to dwell upon, were all brought about by the influence of the State Society. The men who organized the State Society in 1870 were not laggards, but were abreast of the times in advanced ideas and thought, hence our organization has not lived in vain, but has accomplished a great deal—not forgetting the scientific work done and the delightful social life mingled with it, which in itself is a source of great pleasure and relaxation to the busy doctor.

In order to build up and maintain a live State Medical Society it is essential to have district and county organizations.

County Society.

It is difficult to estimate the value of a wide-awake county society. There is no limit to its possiblities if each member will do his duty to himself and to his brother practitioners. It gives its members a time and place to meet and discuss the current medical topics of the day. It brings out the *good* that is in us; it strengthens and develops friendships and brotherly love for, as so well said by another "Sympathy and understanding unite men." It stimulates its members to more earnest study; it prevents us from getting into ruts; it enables us to keep up with the advances in medical literature; it makes better doctors of us all. It makes us more liberal and less critical in our judgment of others. Contact and association bring about closer relations—make us more charitable in the views and opinions of our fellow-man and brother practitioner.

Have you had a kindness shown?
Pass it on.
'Twas not given for thee alone,
Pass it on.
Let it travel down the years,
Let it dry another's tears,
'Till in heaven the deed appears,
Pass it on.

Did you hear the loving word?
Pass it on.
Like the singing of a bird?
Pass it on.
Let its music live and grow,
Let it cheer another's woe,
You have reaped where others sow,
Pass it on.

It has been said that a medical society should be like a big family in which each one is to help elevate and advance the other. If each member would strive to establish such a relationship, the meetings would *mean* a great deal to each member. We must help our fellow-members; we must try to elevate our brother to a high standard of personal and professional life; we must endeavor to do some good each day that we live. We must lend a helping hand to the professional brother who is in trouble, whether financial, professional or personal, for we never know what a day may bring forth. This suggests a poem, entitled—"As To You."

Did you give him a lift? He's a brother man
And bearing about all the burden he can.
Did you give him a smile? He was downcast and blue
And the smile would have helped him to battle it through.
Did you give him your hand? He was slipping down hill
And the world, so I fancied, was using him ill.
Did you give him a word; did you show him the road;
Or did you just let him go on with his load?

Did you help him along? He's a toiler like you.
But the grasp of your hand might have carried him through.
Did you bid him good cheer? Just a word and a smile
Were what he most needed that last weary mile.
Do you know what he bore in that burden of cares
That is every man's load and that sympathy shares;
Did you try to find out what he needed from you,
Or did you leave him to battle it through?

Don't you know it's the part of a brother of man
To find what the grief is and to help when you can?
Did you stop when he asked you to give him a lift,
Or were you so busy you left him to shift?
Oh, I know what you say may be true,
But the test of your manhood is, What did you do?
Did you reach out your hand? Did you find him the road?
Or did you just let him go on with his load?

The following has been well expressed by a layman:

"You doctors are the dearest people on earth and we love every hair of your heads as individuals, but as a class you are *pitiable!* You spend your time and money and energy organizing and maintaining scientific societies for the advancement of science and the betterment of mankind and you do *not know* anything about the law of self-preservation.

"Go home and organize."

Ethics.

I desire to give you my ideas of the ethical phase of our work from the viewpoint of one

who has been in practice many years. I recognize that it is easy to moralize—yea, easy to give advice.

What is Ethics? How would you define it? Ethics has been stated to mean, "The science that treats of human actions from the standpoint of right and wrong." It should teach you how to perform the duties of life, what you should do and what you should not do, viewing the duties and obligations of your profession from a high moral plane rather than from a sordid, commercial one. Remember, my friends, that you belong to a time-honored, noble profession, not a trade union or a commercial organization. A splendid type of manhood has graced and honored the medical profession in the past and we should see to it that the standards are not lowered and that the flag of the covenant does not trail.

Ethics embodies the rule of conduct that should guide the physician in the pursuit of his calling, not only in relation to his brother practitioner, but to the patient and public as well. Bear in mind that Ethics and Etiquette are not synonymous terms. Ethics refers to the rule and guide of a physician's life, personal, moral and professional, while Etiquette refers rather to the forms and conventions that he should ordinarily observe.

According to Professor Robert Saundry, of Birmingham, England, "There are three principles which may be regarded as the cornerstone of medical ethics:

"First: In the relation of the medical practitioner to his colleagues; he should obey the Golden Rule which teaches that 'Whatsoever ye would that men should do to you, do ye even so to them.' (St. Mathew, 8:12.)

"Second: In his relation to his patients; their interest should be his highest consideration—'Aegrati salus suprema lex.' (The welfare of the patient is the supreme law.)

"Third: In his relation to the state, to the laws of his country and his civic duties, there is, again, no better guiding principle than the words of the Gospel, 'Render, therefore, unto Caesar the things which are Caesar's and unto God the things which are God's.' (St. Luke, 20:25.)"

In my opinion, much good could be accomplished if a series of lectures embodying the principles of ethics were given in every medical college in the land, for many of our young graduates leave school without ever having had these questions brought to their attention or impressed upon them, and begin their life work without having given this phase of their work and conduct any consideration whatsoever. Is it any wonder, then, that commercialism takes entire possession of many of them? "Jealousy, that green-eyed monster, would be driven into his Plutonian lair were ethics taught in our medical schools as are some less important subjects."

The Responsibility of the Physician.

The Medical Profession is an exacting mistress. It is very difficult, yea almost impossible, if you attain success as a physician, to do anything else or to follow any other pursuit or calling, for you should always be on hand and alert to respond to the calls of the sick and suffering. You should always remember that the health, the comfort and the welfare of the sick are entrusted to your care and you should realize fully the responsibility of your calling, and your position in the community in which you reside, for a great deal depends on your skill, your attention and fidelity to your work, yea, often, the very life of some individual. Remember further that when you take charge of a case, you should give it the best service that is in you, whether there is remuneration in it or not—whether it is a pay case or a charity case. Do not neglect your work, for, when you are sent for and assume charge of a patient, you thereby prevent some other physician from looking after this poor, suffering being, hence every case should be looked after and treated with careful, painstaking attention and assiduity, remembering that you have no right to take charge of a case unless you are going to give it every necessary service and attention.

Frequency of Visits.

You should see your patient as often as necessary for a proper understanding of the case, keeping yourself informed as to the progress of the case or changes in symptoms that sometimes occur. Do not, however, make unnecessary visits but go as frequently as in your judgment it is necessary for the proper management of the same. This I would insist upon and demand as a right and a privilege when I assume charge of a case. Because a case is incurable, do not cease your visits. Go as often as you can and as is necessary. Do what you can to alleviate the suffering and pain

of both mind and body, cheering the faltering, flagging spirits by a cheerful, bright personality, but do not give false hopes. Cultivate a cheerful, bright, happy temperament and disposition. Make yourself pleasant and agreeable in the sick-room, especially when the time and occasion justify it, but do not lose your dignity. There are times, though, when levity is out of place or is grating on the patient and friends.

"The Test of the Heart."

It is easy enough to be pleasant when life flows
along like a song,
But the man worth while is the man who can smile
When everything goes dead wrong.

For the test of the heart is trouble, and it always
comes with the years,
And the smile that comes with the praises of earth
Is the smile that shines through tears.

Secrecy.

Preserve inviolate the secrets of the families in which you practice. What occurs in the sick-room, at the bedside or in your office in conference with a patient should be as secret as the Confessional. No infirmity, habit, frailty, trouble, misfortune or weakness that comes to your notice in a professional way should be divulged. Learn to forget these things. Do not talk about them to your most intimate friends or associates. Observe this rule and it will soon become a habit and you will find that it will be better for you and your patients as well. You should protect and guard the honor of the family circle and the good name of your patients as you would that of your own family, with scrupulous fidelity and integrity. You should endeavor to save the feelings of every home you enter,

Advice to Patients—Abortions, etc.

Never lose an opportunity to warn patients and friends against wrong doing, such as self-abuse, seeking to have abortions produced, etc. Do not allow yourself to be persuaded or beguiled into aiding or abetting anyone in committing an abortion from sympathy or monetary considerations. First, because it is not right—being a violation of the laws of God and man and it should be of your own conscience. Stand fast and be brave. If you are weak enough to yield once to such importunities you will yield again and you will soon get the reputation of being an abortionist and, before you realize it, you will be in the hands of the law.

Let me caution and warn you also not to yield to the intrigues and designs of any voluptuous woman, especially if she is a patient. It may be the weakness of the moment and you should not take advantage of this weakness. She may be the wife or daughter of one who has faith in your honor and who has trusted you to enter his home, and she may be one whom you should protect rather than disgrace. Should you yield, you will never cease to regret it as long as you live, whether it ends in harm or not. It will embarrass you in a business way and you will forever have a guilty conscience, unless it is already seared by often repeated seances of such a life. Nothing will so lower you in your own estimation or that of your friends, as leading the life of a roue. This always gets out in time and will follow you wherever you go.

Duty and Relation of Physicians to Each Other.

Each of you, my friends, should remember the Hipocratic Oath. Get a copy of it; memorize it and adhere to its precepts and principles.

You should remember that you are obliged to uphold the honor and dignity of the profession by a pure, honorable life, temperate habits and high professional attainments for, as you advance in professional years, the younger members of the profession will be watching your mode of life and habits and you may be the means of uplifting someone if you maintain a high and proper standard of personal and professional bearing. This unquestionably, has its silent influence. Do not for a moment think that you can set at defiance the rules and regulations that govern the profession in your city, town or community. Do not undertake to set at naught the traditions and customs that prevail as to professional conduct, fees, etc., that have governed the profession for years past. If you attempt to do this you will get the better element of the profession down on you, and you cannot afford to do that. No one man is big enough or brainy enough to do this, however influential he may be, and the young physician especially cannot succeed without the good will of his fellow physicians.

When you enter a field, endeavor to affiliate and be on friendly terms with all the members of your fraternity. Cultivate them socially and professionally. Join their societies and

organizations as soon as invited and affiliate with them in every way. Be one of the band; then the good men, the honorable, high-minded physicians will give you the glad hand and will aid you when possible in every way.

Do not undertake to advertise by short cuts or any underhand methods, or by newspaper advertisements or printed cards. The very best advertisement a doctor can have is duty well performed by strict attention to business. Be in place and at the call of the sick always—respond promptly to all calls. Give every case that comes under your care the best service that is in you. Be equipped with the proper armamentarium in the way of instruments, appliances and medicines for your work. It will soon be communicated from one family to another that Doctor — knows his business and attends to it. This will also be recognized by your professional brethren, who, when they want efficient help, will send for you. The old doctor may not be skilled with the microscope, blood count, blood examinations, stomach analysis, etc. You can greatly aid him by these modern methods of determining a diagnosis. Physicans are mutually dependent one upon the other. Always be ready to come to the aid of a brother physician when he is in trouble and needs assistance, by giving an anesthetic or aiding him in difficult cases. Respond promptly when sent for to a physician or any of his household. Attend to them as you would one of your best paying patients. The physician will be grateful and will return this courtesy in kind, directly or indirectly. This service, of course, should be without charge.

When called to attend to another physician's practice, either during his absence or when he is disqualified by sickness or otherwise, do it willingly and graciously and never do or say anything by word, deed, shrug of the shoulder, innuendo or silence, to discredit or reflect on him. This is not right. It is low, mean and contemptible. Attend to the patient as you would your own. Do not change or alter the prescriptions, unless necessary but, when the exigencies of the case and the change in the symptoms require it, do so unhesitatingly and, when you turn the case over to him, which you should do on his return to his work, give your reasons for so doing. Do not hold on to the case even if asked to do so—which is often done—for you may make a pleasant impression on some of them, but do not allow yourself under any circumstances to be persuaded to continue in charge of any of these cases at this time; give them up to the attending physician. If you should so impress any of these patients by your skill and ability that they should afterwards send for you in another and different sickness, why, respond. People have a right to change and will do it. This you cannot help. They have their rights as well as we physicians have our rights. If the doctor were a friend of mine, I should call him up if possible before responding to the call and tell him that I had been called to see Mrs. —. He can but say go. If the patient calls to see you at your office prescribe for her and ask no questions—she is going to leave the other physician so you had as well take the case. This course is perfectly legitimate and right.

Consultations.

Do not hesitate to ask for consultation when you have a serious case. Do it, if possible, before it is suggested by the family but, should they ask it, always agree to it. Especially should you ask for a competent consultant if the diagnosis is not clear, and it is a serious or difficult case. The sick person, as well as the friends, are entitled to consultation. Consultations should be encouraged; they should contribute to enlarged views and good fellowship. Be prompt on the hour and appointed time; the other physician may have engagements and cannot wait. Be frank and candid in a consultation. "No insincerity, rivalry or envy should be indulged in; candor, probity and all due respect should be observed". The directions and treatment of the case should be given and stated by the physician in charge but, if the consultant is asked to express his views, he should do so candidly and clearly without evasions. What occurs in the consultation room should be private and not divulged by the consultant, especially. All consultations should be private, not in the presence of the family or friends, but where a free interchange of opinions and views can be held without reserve. The attending physician can vary treatment but the consultant should not do this save when necessary or in an emergency. In a consultation, if there is a conflict of opinion and views as to treatment, which cannot be adjusted, the consultant should either retire from the case or a third physician be called in. The consultant should never wantonly expose

the errors, mistakes or ignorance of the attending physician. Sometimes this has to be brought out, but it usually can be done in a way so as not to hurt the feelings of the attending physician or excite the suspicions of the family or reflect on him in any way. Guard and cover up his mistakes when it can be done without detriment to the patient or to principle. You may be in a similar situation some day, yourself. We all make mistakes and errors, not only of omission but of commission, so be charitable.

Respond to all emergency cases. If the patient has a regular physician, do what you can to relieve the patient, then suggest that they send for the family physician and, unless he arrives before you leave, leave a note saying what you have done. Accept a fee for this emergency service unless there is some good reason for your not doing so. Always avoid criticising what has been done by another physician. If you cannot sanction or approve, say nothing, or ask to be excused from expressing an opinion. Be honest and straightforward in your relations with the attending physician and family.

Compensation.

Gratuitous service should sometimes be given. Always observe free bills. Never undercharge. Do not give or take commissions.

Ideals.

The doctor who has a true conception of his calling should have ideals.

The ideals of a Doctor of Medicine should be high, lofty, sublime. He should be filled with ambition to excel, certainly to be the equal of any of his associates and colleagues. He should be a well-rounded character. He should possess attributes of a high order. He should be moderate in all of his appetites. He, above all other men, should be honest and straightforward in all of his dealings with his patients, his brother practitioner and his fellowman. He should be a man of broad, liberal education and culture. He should be a leader in the community for good works, and better still, he should be a follower and believer in the meek and lowly "Nazarene." He should have a heart as well as a head. Many factors, my friends, enter into the make-up of a well-rounded physician. He should not pursue his calling mechanically, but he should enter upon his work with zeal, with energy, with assiduity, with spirit, with interest, not simply for what he expects to get out of it, but with an eye single to the welfare of the lives committed to his care. It is true the laborer is worthy of his hire, so he should conduct the business part of his profession on business principles.

Remember, though, that your chief mission is to soothe the fevered brow, to quiet the restless raving of the tired and weary brain, to restore confidence to the depressed and failing spirits, to gladden the heart of the young mother by placing in her arms and to her breast her first-born, thus causing her to forget the toil, the anguish and the pain through which she has just passed, and causing a new love and sympathy to well within her heart and to enter her soul, that has never filled it before. The love of a mother for her child is stronger and far surpasses that of any human love, feeling or attachment, and any man who proves false and recreant to this love and dishonors the name of the sweet woman who nurtured him at her breast, should be trampled under the foot of man and driven from the face of the earth. Mother! It is the sweetest name that can pass the lips of man.

It has been said that every mother gets well paid for all the prayers she offers and the tears she sheds in behalf of her children. I do not know that this is true—would that it were. Show me a man, though, who has attained success in any of the professions, in commercial life or in any walk of life, as a rule his success is due to the sweet influence of a Christian home and every step in life he takes is an echo of joy to that dear old mother's heart, who taught him at her knee his infant prayer.

I do not know that you could do better than to adopt as the guide of your life the Golden Rule, "Do unto others as you would that they should do unto you." These few words embody, in my judgment, all the rules and regulations necessary for the guidance of your professional life, and if you will follow them, you will never go wrong. To you, my friends, let me urge that your ideals be high. Endeavor to help your fellowman and to do some good each day as you pass along life's pathway.

"But Once."

"I shall pass through this world but once; any good that I can do or any kindness that I can show to any human being, let me do it

now. Let me not defer nor neglect it for I shall not pass this way again."

Strive to elevate your professional brother with whom you associate and come in contact by an unselfish example for the truth and the right always. By so doing you will put your profession on a higher and nobler plane and thus realize its responsibilities and opportunities yourself. To paraphrase one of Dr. Van Dyke's most striking epigrams, "The True Measure of Life":

"We live in deeds, not years, in thoughts not in breath;
In feelings, not in figures on the dial.
We should count time by heart throbs when they beat,
For God, for man, for duty."

"He most lives
Who thinks most, feels noblest, acts the best.
Life is but a means unto an end, that end,
Beginning, mean, and end to all things, God."

Let us make the world better by our example and life. Let us strive to uphold the honor, the dignity and the traditions of our noble profession and follow in the footsteps of the splendid type of men and physicians who have preceded us, who have passed over the river; who have been gathered to their fathers and who are now resting under the trees in a glorified faith.

When our work is done may each of us enter upon a higher, nobler life, prepared for those who walk uprightly and fear God.

ACUTE NON-TUBERCULOUS INFECTIONS OF THE LUNGS AND PLEURA. (Etiology and Pathology).*

By F. C. RINKER, M. D., Norfolk, Va.

Acute respiratory infections have assumed a place of first importance in medicine on account of the pandemics of the past two years.

In order to well understand the etiology of acute infections of the lungs and pleura, we must bear in mind first the microscopical anatomy of the lungs including the blood and lymph supply. To review briefly the anatomy of the lung I can do no better than call your attention to the recent work done on this subject by W. S. Miller.

Miller has divided the anatomical structure of the lung into Primary and Secondary lobules as follows: "If the bronchial tree be followed to its ultimate divisions, a point will be reached where the bronchi are no longer of a regular outline but the have here and there small spaces (*Alveoli*) opening into their lumen; such bronchi are termed *bronchioli respiratorii.* Each bronchiolus respiratorius divides into branches which have a still greater number of alveoli connected with them—the *ductuli alveolares.* Each ductulus alveolaris is connected with a variable number of irregularly spherical spaces, the *Atria*, which also possess alveoli. With each Atrium there are a number (2-5) of *Sacculi alveolares* which bear on all parts of their circumference alveoli—the *alveoli pulmonum.*" He calls the ductulus alveolaris and the air spaces connected with it *The Primary Lobule.* This section or unit of the lung receives a net work of lymphatics and blood vessels, both nutrient and functional. A number (50-200) of these primary units go to make up a Secondary Lobule which is enclosed between fibrous or elastic tissue septa and a number of these secondary lobules go to make up the lobes of the lungs.

With such minute histology, so richly supplied by blood and lymph streams and in a sense open to the outside world, we can readily appreciate how bacteria may reach the parenchyma of the lung through: (1) air passages, (2) blood stream, (3) lymph stream, and it is easily seen that such infection may result in pathological processes of varying structure and intensity.

Recent experiences have awakened us to the importance of thorough study and consideration of non-tuberculous lung affections.

Acute non-tuberculous infections of the lungs may be divided into the following groups:

1—Lobar pneumonia,
2—Broncho-pneumonia,
3—Metastatic pneumonia or infarct.
4—Luetic pneumonia.

Etiology.

Predisposing Causes are: Exposure to extreme weather changes; trauma to the chest wall; contact with infected individuals, and, most particularly, inflammations elsewhere in the body, such as: upper respiratory infections, typhoid fever, meningitis, infected wounds on the surface of the body, etc.

Causative Agents are: The pneumococcus-streptococcus group; the Friedlaender bacil-

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lus; the influenza bacillus; the colon bacillus; the typhoid bacillus and the spirochaeta pallidum. Pneumonia is also rarely caused by actinomycosis, glanders bacillus, blastomycosis, etc. These infections are too rare to be considered here.

Barker says the pneumonias are caused by one or more of the different types of the pneumococcus (as described by Cole); the streptococcus; the Friedlaender bacillus, the staphylococcus; and occasionally by the influenza bacillus; the colon bacillus, etc. He speaks of broncho-pneumonia as being secondary to a descending form of bronchitis. He also describes metastatic pneumonia as resulting from septic emboli arriving through the pulmonary artery.

Chickering, in studies at the Rockefeller Institute, found: *First*, that lobar pneumonia almost always results from the infection of the different types of disease producing pneumococci, and *second*, that secondary pneumonias result from a great variety of organisms as: the pneumococcus, the streptococcus, the influenza bacillus, and others. He believes that these organisms find entrance through disease conditions in the upper air passages.

Goodpasture believes that influenza is due to an unknown virus and that the organisms causing pneumonia in these cases are secondary invaders.

Birge and Harris place the blame of the pneumonias, during the recent influenza epidemics, on the hemolytic streptococcus.

Kotz studied material from 30 lungs of patients dying from influenza pneumonia and found the influenza bacillus in 15, the pneumococcus in 27, a small diplococcus forming chains in 14, and the streptococcus in 8.

Hurley concludes that it has not been established that the Pfeiffer bacillus plays either a causative or contributory role in producing pneumonia. He believes that the influenza bacillus may prepare the soil for the invasion of the streptococcus and the pneumococcus, and says the latter seem to be the organisms responsible for the deaths.

Brown and *Palfrey* found that either the streptococcus or the pneumococcus or both were present in a large proportion of cultures made from cases of influenza pneumonia. They found type I pneumococcus in 25.5 per cent. of cases studied, type II in 17.1 per cent, type III in 19.1 per cent, type IV in 22.7 per cent, more than one type in 9.3 per cent, and undetermined including the streptococcus in 6.3 per cent.

Mac Callum states that no one causative agent for influenza has been found, but whatever it is, it greatly lowers resistance to bacterial invasion and, therefore, may be complicated by pneumonia caused by any of a series of organisms such as: the streptococcus, the pneumococcus, etc.

Nuzum, *Stengel*, *Pilot* and *Bonar*, in studying influenza cases, found hemolytic streptococci in 20 per cent of washed sputa and in 4 per cent from cultures made from the nasopharynx. In 36 necropsies they found it in 43 per cent in the lungs and 8 times in the heart's blood. They conclude that this data would indicate that the hemolytic streptococcus was a secondary invader in influenzal cases.

Keegan also regards the streptococcus as a secondary invader.

Davis believes that the streptococcus was a secondary invader in the pandemic of 1918 and points to the probability of its gaining entrance through the tonsillar crypts.

In this review of the literature, it is fairly generally agreed that the most frequent causative agents of lung inflammations, not tubercular, are: the pneumococcus-streptococcus group and, in the recent pandemics these two organisms, in one or more of their strains, were secondary invaders causing the pneumonia after the influenza bacillus had paved the way by lowering local and general resistance and preparing a more fertile soil for the invasion of other bacteria.

Acute Syphilitic lung infection is worthy of mention here because of its similarity to tuberculosis, clinically. It was once thought that syphilis only attacked the lung in the tertiary stages. This view still holds good in regard to the parenchyma of the lung, but syphilis may attack the bronchi and peribronchial tissues very shortly after the appearance of the primary lesion. This type has been called Pulmonary Syphiloma by Dieulafoy. The author has recently seen such a case which had been diagnosed acute tuberculosis, the case having a four plus Wassermann reaction, and having a negative sputum with negative Roentgen findings for tuberculosis and recovering very rapidly following antisyphilitic treatment.

Avenues of Invasion: In all cases of lung infections some infecting agent is conveyed to the lung by one of three routes: (1) from the upper respiratory passages or external world through the bronchi (air-borne invasion); (2) from infectious processes in the upper respiratory tract or elsewhere in or on the surface of the body through the blood stream (blood-borne invasion); or (3) from infections involving the adenoid tissues through the lymphatic channels (lymph-borne invasion).

It is the author's opinion that many if not all of the acute infectious processes in the lungs and pleura result as secondary infections from some primary focus in the open avenues or from some focus existing on the surface of the body through the medium of the blood or lymph streams.

Keeler speaks of the possibility of hemostatic infections of the lungs from nasal infections.

Pathology.

From a pathological view-point, acute, non-tuberculous infections of the lungs can best be discussed under the separate divisions:

1. Lobar-pneumonia. Since the time of Laennec, pathologists have recognized three stages of pathology in the course of this disease—(a) Engorgement, (b) Red Hepatization, (c) Gray Hepatization or Resolution. The pathology of these three stages is so well known to us all that it is not deemed necessary to discuss them in detail here.

2. Broncho-pneumonia or Croupous pneumonia has attained a position of priority among other acute lung infections as a result of recent pandemics affecting the respiratory tract in general.

Osler divides this type of pneumonia into three forms pathologically. (1) Those cases in which the bronchitis and alveolitis is most marked and in which there may be no definite consolidation, (2) The disseminated pneumonias in which there are scattered areas of peribronchial hepatizaton with patches of collapse of the lung tissue while a considerable portion of the lobe is still crepitant, and (3) The pseudo-lobar form, in which the greater portion of the lobe is consolidated but not uniformly.

The recent-day cases of broncho-pneumonia probably more closely simulate the second class of cases as designated by Osler.

Mac Callum, in discussing the pathology of broncho-pneumonia following influenza, states that the pathology differs with the type of the infecting organism. (1) When caused by the pneumococcus the pleura is dull, there is little fibrin, there are brick red patches or small elevated gray flecks on the cut surface of the lung, the bronchi are not conspicuous and the septa not prominent; (2) When the causative agent is the streptococcus he finds the same picture of morbid anatomy except the bronchial walls are thicker and more prominent; (3) When caused by the influenza bacillus there is no great pleural exudate, the bronchi exude yellow pus and the cut section shows shot-like gray patches on the surface.

Le Count, in describing the pathology of influenza pneumonia, was impressed with the small amount of undistensible lung. On section he found a wet, velvety, non-granular appearance like the cut section of skeletal muscle. He describes an enormous amount of sero-sanguineous exudate in the bronchi and found an abundance of similar fluid in the subpleural lymph spaces. He found no visible details of alveolar markings through these opaque and brown areas. The bronchioles were congested and filled with bloody froth.

Lyon, in describing the gross pathology of influenza pneumonia, speaks of it as a hemorrhagic pneumonitis with characteristic intense pulmonary congestion. He also found an abundant amount of sero-sanguineous fluid in the alveoli (most marked at the bases), small areas of emphysema in the involved lobes, and speaks of the similarity of the lesion to a terminal congestive process.

Luke, *Wight* and *Kime* describe the morbid anatomy of influenza pneumonia as a lobular pneumonia with a tendency to become pseudo-lobular and with a mixed smooth and granular cut surface.

Polettine carried out 50 necropsies on influenza pneumonia cases and concluded that the lesions are characterized by confluent bilateral hemorrhagic broncho-pneumonia involving chiefly the bases.

Walker speaks of influenza-pneumonia as a hemorrhagic lesion, interstitial, nodular or massive in extent, arising from a pulmonary, capillary phlebitis with disseminated capillary necrosis due to some toxic agent and resulting in secondary purulent pneumonia with healing by organization.

In reviewing the literature further, it is quite generally agreed that the influenza epidemic resulted in a broncho type of pneumonia, which may be described as a hemorrhagic pneumonitis with serosanguineous exudate in the bronchi and alveoli and that the pneumonic process was probably caused by secondary invaders such as one or more of the types of the pneumococci or streptococci.

Syphilis of the Lungs.

Osler describes syphilis of the lungs as being rare, and says its pathology is that of a sclerotic process advancing sometimes from the pleura but more commonly from the root of the lung. It rarely involves more than a portion of a lobe. The bronchi are dilated in the involved area.

Dieulafoy described it as a number of nodules of broncho-pneumonia in various stages (catarrhal, fibrinous, caseous) the lesions being grouped around a bronchus. The mass is composed of alveoli filled with cells and appears to be undergoing fatty degeneration.

Pleura.

The Etiology of acute non-tuberculous infections of the Pleura differs none from the etiology of the acute lung infections as described above.

The Avenues of Invasion are: (1) By metastasis through the blood or lymph streams from foci of infection in other parts of the body or on the surface of the body.

(2) By extension to the pleural surface of inflammations in the lungs.

(3) By perforations from abscess formations existing in neighboring organs as liver, pericardium, etc.

(4) By stab or puncture wounds of the chest wall, met with frequently during the recent war.

Many authors state that acute inflammations of the pleura, coming on in the absence of lung infections or wounds perforating the chest wall, are in the large majority of cases due to tubercular infection. The writer from past experience has to differ from this view. On the other hand he is of the opinion that the majority of so-called primary pleural infections result from metastasis from acute or chronic foci existing in the upper respiratory tract or from primary infectious processes in other parts of or on the surface of the body.

The Pathology of acute inflammations of the pleura may be divided as follows:

(1) Dry pleurisy or pleuritis sicca.

(2) Pleurisy with effusion or pleuritis exudativa.

This division may be subdivided into serous, serofibrinous, hemorrhagic, or purulent, according to the character of the exudate.

In the first division there is congestion of the two pleural surfaces which are covered with a fibrinous membrane. The serosa is infiltrated with leukocytes, the blood vessels are dilated, and the lymphatics are packed with white corpuscles.

Pleurisy with effusion is an inflammation of the pleura associated with the collection of an exudate in the pleural cavity. The pathology is the same as in the dry pleurisy except for the presence of the exudate.

The *Exudate* may be clear and contain only fibrin and a few cells or it may become hemorrhagic or purulent resulting from an outwandering of leukocytes. The latter type is usually associated with either pneumococcic or streptococcic pneumonia, and is known as empyema. It has been noted frequently during the recent influenza epidemics.

Lyon in describing the gross pathology of influenza says: "One of the more or less striking characteristic lesions was what may be hemorrhagic pleuritis associated frequently with pleural effusions of different characters."

Walker speaks of empyema and other pleural effusions as being fequent complications in the cases of influenza-pneumonia studied.

In the author's experience, during the epidemics of 1918 and 1919, he observed a high percentage of empyemas as complications of pneumonia, all of which were due to either the pneumococcus or the streptococcus hemolyticus.

Conclusions.

(1) Acute non-tuberculous infections of the lungs are due to pyogenic invaders, such as the pneumococcus, streptococcus, etc.

(2) It is suggested that inflammations of the lungs and pleura are probably due to secondary infections from some primary focus existing in the open avenues or on the surface of the body.

(3) It is suggested that the majority of pleural inflammations result from secondary pyogenic invasion of bacteria and not from tubercular infection.

(4) The pathology of influenza pneumonia, it is agreed, is a hemorrhagic lesion associated with small broncho-pneumonia patches

throughout the lung tissue and a large amount of bronchial and pleural exudates.

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IN WRITING ADVERTISERS,
PLEASE MENTION THIS JOURNAL

ACUTE NON-TUBERCULOUS INFECTIONS OF THE LUNGS AND PLEURA—SYMPTOMATOLOGY AND DIAGNOSIS.

By MANFRED CALL, M. D., Richmond, Virginia.

A Discussion of the Symptomatology and Diagnosis of the Acute Non-Tuberculous Infections of the Lungs and Pleura includes all of the acute non-tubercular infections of these two structures of bacterial or parasitic origin, whether developing primarily in these two locations, occurring as a process secondary to a near or a remote focus, or as a complication in such diseases as diabetes mellitus, cardio-vascular sclerosis, nephritis and the various arthritides. A list would include:

Pleurisy, dry and with effusion, serous, purulent, free. encapsulated, interlobar.

Lobar-Pneumonia, massive, central, migratory, senile, terminal.

Broncho-Pneumonia, discrete, disseminated, confluent.

Infarction, if septic.

Pulmonary Abscess.

Syphilis.

Actinomycosis, aspergillomycosis, oidiomycosis, nocardiosis. These latter are certainly rare in our section, they simulate either pneumonia or tuberculosis, and a positive diagnosis is established by the recovery of the specific organism from the sputum. I will not consider them further.

Symptoms.

Rather than indulge in a stereotyped discussion of these more common infections, we may more profitably consider the symptoms which, singly or in combination, may be encountered in any or all of them with a consideration of their significance when present.

These symptoms are: Cough, expectoration, dyspnoea, cyanosis and pain, as well as the constitutional manifestations of the infection as evidenced by changes in the temperature, pulse, and respiratory rate and nervous phenomena.

Cough. Irritation of the pulmonary parenchyma does not produce cough. In the lower respiratory tract (that is below the larynx), cough means bronchial or pleural irritation, the most sensitive areas along the bronchial mucosa being at the bifurcation of the trachea. This cough may be productive or non-produc-

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tive. A productive cough is associated with expectoration, and expectoration makes the diagnosis much easier.

Cough may be constant (with a continual irritation), or paroxysmal, the result of a gradual accumulation of secretion which finally overflows on the bronchial mucosa, exciting a cough which persists until the exciting cause is removed. This type of cough with resulting augmentation of expelled secretion is frequently induced by a change in the posture of the patient and the effect of this change of posture is of diagnostic importance.

An apical abscess or cavity, draining by gravity, will give a constant irritating cough without marked variation in the amount of expelled secretion.

An abscess, cavity, or bronchial sacculaton at the base of the lung with its periodic filling and discharge will excite the paroxysmal type of cough.

A vigorous cough indicates the absence of profound toxemia while the disappearance of a previously existing cough with a persistence of the physical signs may indicate a profound toxemia, or an excessive weakness.

A pleural cough usually intensifies the pain of pleurisy and the patient makes every effort to suppress or smother it.

A non-productive cough is useless. It harasses the patient when awake: disturbs him when he would sleep, and causes a useless expenditure of muscular and nervous energy: irritates the respiratory tract and, by increasing the alveolar tension directly, increases the work of the right heart. This in the presence of a toxic myocardium may determine a fatal dilatation.

Expectoration is a symptom closely associated with cough and dependent upon it. The pus or serum content of the sputum determines its fluidity: its mucus and fibrin content determine its viscidity. The greater the pus content the less the air content: the smaller the tube of origin the greater its air content.

The amount of the sputum frequently depends on the factors mentioned while discussing cough (constant drainage or periodic overflow, the size of the cavity and the amount of bronchial irritation).

From bronchiectatic sacculations and pulmonary abscesses more or less characteristic expectoration is seen (the three layer sputum) and from this may be obtained tissue shreds from the parenchyma.

The occurrence of blood in the sputum is always a matter of moment. It varies from the tinge of a capillary oozing, the larger amounts of a ruptured bronchial varix to the massive hemorrhage of cavitations. While hemoptysis does follow the occurrence of an infarction and the pneumonias, the occurrence of pure blood, unexplained, always excites the suspicion of tuberculosis.

Pain. The pulmonary alveoli are insensitive to pain. The presence of pain usually predicates pleural involvement. Its manifestation varies from the slight stitch in the side to a pain of an agonizing character. Pleural pains are, as a rule, more intense on inspiration: forcible expiration will also intensify the pain.

The occurrence of referred pain from pleural irritation should be remembered, as it is so frequently misinterpreted.

Irritation of the parietal pleura may cause pain in the occiput, the axillae, and the subscapular regions, while from the diaphragmatic pleurae its distribution would be to the back and to the abdomen. At times this latter is so severe as to be confused with the pain accompanying acute abdominal inflammation, such as appendicitis. The parietal pleura and the upper part of the diaphragm receive their innervation from the lower six intercostal nerves, the central diaphragmatic pleurae from the phronic nerve with painful spots along the ridge of the trapezius muscle.

Persistent cough with its unusual muscular exertion causes a distressing muscular soreness.

Dyspnoea is due either to a lack of oxygen, or to an excess of CO_2. Immobility of the diaphragm may induce dyspnoea and the recumbent posture would tend to intensify it, therefore the sitting posture of the patient is perferable when dyspnoea is extreme.

In lobar pneumonia, the alveoli filled with an exudate are fixed in a state of permanent expansion, therefore the diaphragm is more or less immobile. Toxic states that affect the respiratory centre and myocardial insufficiency will markedly increase dyspnoea.

The extent of lung involvement does not necessarily bear a direct relation to the degree of dyspnoea for the most toxic cases may have a comparatively small area of consolidation.

Cyanosis is a result of an encroachment of the alveolar capacity with a marked reduction

in the functioning of the pulmonary circulation. Vascular and central nervous influences markedly intensify this symptom.

The Constitutional Manifestations of these infections are shown by the temperature variations and changes in the pulse and respiratory rate, nervous phenomena vary according to the degree of toxemia or to a cerebral localization of the infection, as a complication; occasionally cutaneous manifestations occur, such as herpes labialis in pneumococcic infections. The severity of these symptoms is dependent upon the virulence of the infection and the resistance of the patient.

The temperature elevation may be taken as a rough index of the patient's resistance to any given infection. Failure of the temperature response and its gravity as a prognostic sign are well illustrated in the senile form of pneumonia. Here the temperature is normal or subnormal and the mortality is 100 per cent. High initial temperature may be followed by an abortive form of the disease. Sudden accessions of temperature with an intensification of symptoms usually signifies an extension of the disease or the onset of complications. Where the infection lingers, its virulence becomes attenuated and the temperature assumes the septic type, the remissions being more marked and associated with sweating.

The Pulse Rate, Volume and Rhythm is an index of the degree of toxemia, the efficiency of the myocardium, and the state of vasomotor control. On these factors depends the variation in blood pressure readings. A marked bradycardia suggests a vagus stimulation and this is commonly due to a peribronchial irritation involving the fibres of the pneumogastric.

The Respiratory Rate varies with the depth of inspiration (influenced as it may be by pleural pain), the extent of pulmonary compression by effusions, the extent of consolidation in pneumonia or infarction, the occurrence of atelectatic areas in bronchopneumonia, and the effect of toxemia on the respiratory centre.

The Facial Expression and protecting posture of acute pleurisy are familiar sights, while the orthopnoea, shallow breathing, dusky facies of extensive effusions form a striking picture.

The Physical Findings in these infections will be discussed in a general way rather than as applied to each diseased condition, for if we can fix in our minds the principles underlying the occurrence of these physical signs we can with little effort apply the principles wherever such an application is indicated. "Superficial examinations are fatal to reputation and prestige. True economy of time depends upon a correct and systematic technique, quick perception, and intense concentration." (Greene.)

Inspection. Localized changes in outline, fixation, lagging, bulging, pulsations and the extent of diaphragmatic excursion as revealed in Litten's sign are the most important points covered by inspection. In addition to these I would emphasize a study of the inspiratory movements of the costal margins as developed by Hoover. Briefly stated, his exposition of this sign is, "Inspiratory widening of the subcostal angle and the outward movements of the costal border are not expressions of phronic excursions but of intercostal activation—that when the curve of the phronic plane is flattened the diaphragm gains the mastery of the costal margins and that when this is the case the costal margins *move toward the medial line* during inspiration. The only agent which causes widening of the subcostal angle during inspiration is the intercostal musculature."

Palpation is chiefly concerned with the detection of fremitus. An increased fremitus means a condensation of lung tissue due either to consolidation or compression. Diminished fremitus usually means pleural thickening, effusions, or adhesions.

Percussion by itself gives no pathognomonic evidence. It indicates the position of the thoracic viscera, the areas of condensed lung, the presence of abnormal amounts of air in normal or abnormal locations, the level of pleural effusions, the presence of the paravertebral triangle of dullness, the cracked-pot sound of a cavity communicating with a bronchus. The information gained by percussion must, as a rule, be supplemented and interpreted in the light of the auscultatory findings.

Auscultation gives the most definite information—the friction rub, pathognomonic of pleurisy; the distant and suppressed breathing of effusions; the hushed areas except on deep inspiration of broncho-pneumonia; the tubular breathing of consolidations and compressions; the increased whispered voice; the amphoric breathing of cavities; the egophony of effusions and the rales of varying size that enable us to make a fairly accurate localization of their point of origin. The study of these rales,

their disappearance and modification by cough, give the most important diagnostic information. "The crepitant rale is the only rale produced in the alveoli and indicates parenchymatous involvement of the lung". (N. & L.)

Crepitant rales are to be distinguished from friction sounds: the time of their occurrence is usually limited to the end of inspiration. The asthamatoid wheeze of Jackson is present in a considerable number of cases of foreign body in the bronchi, which may precede abscess formation. "It is heard by placing the ear or bell of the stethoscope close to the patient's mouth. It may be heard with both inspiration and expiration, but sometimes is audible only at the end of forced expiration. Associated with this are fine tissue paper crackles over a small area. To be distinguished from pneumonia in the early stage in acute cases, and from tuberculosis, if the body has been present for some time." (McCrae, J. A. M. S. CLIX-3.)

Laboratory investigations include a study of the blood, urine, sputum, exudates or effusions.

Blood. Leucocyte and differential count should be a routine. A leucocytosis indicates a pneumococcic or septic infection; it absence suggests an influenzal, tubercular or typhoid infection.

The polynuclear increase represents the virulence of infection: the total white count the resistance of the patient.

Consecutive blood counts are of great comparative value, not only as a guide to prognosis but as suggesting the onset of complications. A serum Wassermann may be indicated.

Urinalysis may be of diagnostic importance not alone in reference to changes occurring in the renal parenchyma, as a complication, but also as furnishing corroborative evidence of an obscure pulmonary condition. A pneumococcic pulmonary infection may be centrally located, without characteristic physical findings but with a typical onset of constitutional symptoms. Cabot has noted the value, in such cases, of the urinary findings of an acute nephritis, or renal irritation as evidenced by the presence of albumen and tube casts in the urine, and states that this finding has frequently been the determining factor in a positive diagnosis of lobar pneumonia. The pneumococcic toxin apparently has a selective affinity for the renal parenchyma.

In the year prior to the great flu epidemic fully 90 per cent of the cases of lobar pneumonia in my service at the Virginia Hospital gave the urinary findings of an acute nephritis.

During the flu epidemic of last year such findings were an exception, but the cases were not typically lobar pneumonia.

Sputum examination should be made in all cases. "Sputum must be as carefully collected as blood or urine that is to be used for cultural purposes." (Leutscher.)

"Have the patient rinse the mouth thoroughly with sterile salt solution and cough the sputum directly into a beaker of sterile salt solution. With an applicator that has been passed through an alcohol flame, stir the sputum around in the salt solution to wash off any superficial contamination, transfer with the applicator to sterile test tube and send to the laboratory. A report should be made of all the organisms that can be identified in the order of their predominance. This remark is of equal importance when sputum examinations are made for the detection of the tubercle bacilli. Contrary to the belief that the flora is an everchanging one, in the cases that are subacute or chronic, it has been proven that repeated examinations over a number of months show a remarkable uniformity in the findings. I have noted that after the sputum has been practically cleared of bacteria by a series of vaccinations, followed by a lapse of months, if the symptoms return, the sputum will show the same findings as before.

Effusions can be studied for cell differentiation: lymphocytes, polynuclears, endothelial cells, and cultures made, also guinea pig inoculations. This information, however, is usually confirmatory of other more positive clinical findings. Here I would emphasize the advisability of diagnostic puncture when indicated, a procedure that may give so much information, attended with little danger, and yet neglected by the majority of practitioners.

Roentgenographic Chest Examinations I have followed with the greatest interest, and frankly confess to a much broadened conception of pulmonary, bronchial, pleural, and mediastinal pathology, acute but especially chronic, since I have had the very satisfactory and close cooperation of my X-Ray friends.

Bronchial radiations and dilatations, the lymphatic involvement of acute infections simulating in appearance a diffuse miliary tuberculosis, bronchial gland involvement, cavi-

tations, adhesions, localized fluid collections, pneumothoraces, scar tissue formations, abscesses stand out with startling distinctness; while in long continued cases consecutive pictures give an unrivaled understanding of what has transpired in actual tissue change. The more highly trained roentgenologist I have found to be just as conservative in his statement of facts as any clinician of equal training and experience.

DIAGNOSIS.

It is sometimes possible to make a diagnosis by the physical findings alone,—peritonitis; pleurisy. Again, a diagnosis may require physical findings plus objective and subjective symptoms; infarction of the lung. A complete diagnosis usually requires a third factor and that is the etiologic factor. This factor can be separated into two groups, a predisposing and an exciting group by a careful general examination and a searching history. The group of exciting causes has been given detailed consideration in a preceding paper. This is undoubtedly necessary in the acute infections we are now discussing.

The predisposing causes include occupation, age, history of fatigue and exposure; habits; disease association, antecedent and coincident; especially acute or chronic infections of the upper respiratory tract; ethmoiditis; sinusitis; laryngitis; tonsillitis; pyorrhoea; septic foci in other organs of the body; malignant endocarditis; arthritis; nephritis; traumatism, either operative or accidental; the presence of an epidemic.

Information along this line of inquiry may be of the greatest help. For example, a recent tonsillectomy with a possible pulmonary abscess following in its wake, an acute lighting up of a chronic non-tuberculous lung infection, based primarily on an old infection of the upper respiratory tract; endocarditis with the possibility of pulmonary infarction etc.

The differentiation of the acute non-tuberculous infections from acute pulmonary tuberculosis will not be difficult if we keep in mind the possibility of acute tuberculosis. It is frequently missed because it is not thought of.

An undue prolongation of an acute supposedly non-tuberculous infection, especially if there is a past history of hemoptysis, or essential pleurisy, an apical parenchymatous change, rather than at the base, or cavitations, should certainly guard us against such an error.

I believe that any of the acute infections we are discussing are possible of diagnosis in a high percentage of cases, if we make careful use of our faculties of observation and reasoning. The essential laboratory examinations should be available to every practitioner. The technique is easy of acquirement, and the expense for equipment is small.

TREATMENT OF PNEUMONIA.*

By J. W. PRESTON, M. D., Roanoke, Va.

Following upon the heels of the great war, the two recent epidemics of pneumonia found us with the greatest medical organization the world has ever known, and through its agency, it can truthfully be said the study of this disease was the most intensive and thorough of any in the history of the healing art. Despite this as a destroyer of human life, pneumonia ranks today first among the acute infectious diseases.

At the outset of any study of pneumonia one is impressed by the seeming small value of comparative statistics for the reason that, as McCallum[1] has so well set out in the epidemics under consideration, there was so great a variation in the character and type of the invading organisms in different localities, and even in the same locality at different times, the one being mild and abortive, the other malignant, with all graduations between. This explains in a measure why the reported results of any given treatment varied so much, and also, what is of greater importance, was no doubt responsible for the impressions gained by many that the remedies of their own choice were of especial merit.

In the beginning of the first epidemic there was a mad rush for specifics, mainly in the direction of vaccines and polyvalent sera. The emissaries of commercial houses worked overtime and their propaganda was so effectual as to lead many to believe that no patient had been properly treated until some of these had been tried out. In the general search for specifics here indicated much knowledge was gained, though unhappily largely of a negative character. Much ground was covered which we need not again traverse if we profit by our experience.

In the matter of specific serum in the treatment of lobar pneumonia, it may now be stated

* Read as a part of the symposium on Acute Non-Tuberculous Infections of the Lungs and Pleura, at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

that authorities are agreed that it is a valuable adjunct in the therapy of type I, provided it be administered within the first forty-eight hours of the onset and in sufficiently large doses at proper intervals.

Lord[2] goes so far as to state that he is not only convinced of the value of the serum in type I lobar pneumonia but that there is no escape from the obligation to use it. In fairness, however, it should be noted that not all have had such uniformly good results as to maintain a mortality rate so low as 7.5 per cent, reported in Cole's[3] first series of cases, the figures varying from this, to that of 34 per cent, as reported from Camp Wheeler.

Touching the use of polyvalent sera we perhaps cannot do better than to accept a second statement of Lord, also made in the article above referred to, that "Type I pneumococci is the only antipneumococcic serum which has been found to be of curative value in pneumonia in the human subject". Notwithstanding this positive statement of so good an authority, attention should be called to a recent article by Gray[4] in which he presents a summary of the reports relative to the use of Key's polyvalent chicken serum, which makes a very favorable showing. Since chickens are immune to pneumonia it is claimed with apparent reason that a more concentrated product may thus be secured which has the distinct advantage of the small dosage of from 2.5 to 10 c.c. as against 50 c.c. or more of other sera, with the resulting inconvenience and dangers of the latter.

Having accepted as a fact that type I serum is curative, one is interested to inquire why it has not come into more general use. The answer to this in brief seems to be the impracticability, for the present at least, outside large centers, to secure prompt typing of cases, and the minute detail necessary in the administration of the serum. It must also be borne in mind that type I represents less than one third of all lobar pneumonias, and that by far the majority of cases the past two years have not been lobar but broncho-pneumonia.

In order to obtain first hand information I have written the health officers of a number of our larger cities and find that at present Boston, New York, Chicago, and Cincinnati type pneumonias free of charge for all who request it. Cleveland has not undertaken it; Philadelphia began it before the war but abandoned it. In reply to my inquiry, Dr. Stimson, of the Public Health Service, states that it is impossible to type sputum which has been delayed in transit; and that while it would be of value both to patients and practitioners, could it be accomplished, it does not at present seem practicable for the bulk of the population.

Since the technique of typing pneumonia is such that it can not be done outside a well equipped laboratory, manifestly, here in Virginia at least, such facilities are available to proportionately few practitioners, and the question naturally arises why not give the serum to all cases without discrimination, with the hope that those whose type is other than that of type I may not be materially harmed, while those of this type may obtain the benefit of its specific action. Cole[5], than whom there is no better authority, advises against such procedure.

As to the therapeutic use of vaccines in pneumonia, the most of us have had our try out. In addition their use was given a free reign in some of the Army Camps. There are among us but few enthusiasts left. In the present state of our knowledge they are in no sense specific, and the best that can be said is that the benefit derived is from a foreign protein. The most of us know from experience how easy it is to stir up chills, fever, sweats and depression by injecting foreign proteins, and we likewise know full well that pneumonia patients are not subjects with whom we can take chances.

Billings,[6] who is recognized as perhaps the leading authority in this country in such matters, discussing the therapy of foreign proteins in acute diseases, such as pneumonia, states that the results are not constant, that the *modus operandi* is not understood, and the procedure is not free from danger. He further states that if used the dose should be small and the risk should not be taken without due deliberation.

The use of convalescent serum, which for a time held out much promise, in the light of further experience, has been disappointing and had probably best be abandoned. Lord[7] reported its use in twenty-three cases with a mortality of just twice that of controls.

The intravenous use of glucose solutions has steadily grown in popularity, although a mortality of 20 per cent as reported in the cases in which it was used at Camp Dodge does not argue very strongly in its favor. In a recent

study of the results of 1,200 administrations, John[8] concludes that as an adjunct in the treatment of pneumonia it combats acidosis, aids nutrition, tends to produce sleep and reduce temperature, strengthens the heart and aids in elimination by the skin and kidneys. In his experience, a ten per cent solution has acted best; and of this he prefers to give 250 c.c. twice daily. He states that he has been unable to avoid protein reactions following its use in all cases, but appends a foot-note stating that Mosenthal has substituted the commercial glucose for the chemically pure, and that fewer chills are said to follow its use.

In the presence of the severe hemorrhagic type of pneumonia everyone must feel in a measure his helplessness. Affording a rational basis for therapeutic measures looking to the control of the lung condition before this stage be reached, Kline[9] calls attention to good evidence for the belief that this is a species of pulmonary edema having its origin in the bronchioles and more or less rapidly infiltrating the lung tissue and alveoli. Correlating this Cohen[10] and others are again stressing the importance of maintaining the blood pressure at as high a level as possible, through such agents as atropine, pituitrin, adrenalin, and digitalis.

Relative to the need and use of stimulants in pneumonia, there is still, as there probably always will be, a divergence of opinion. By the majority of men, as a stimulant primarily, alcohol has been doomed and discarded; but as an easily combustible food, thus indirectly acting as a stimulant, there is a lingering feeling that it has its place. Strychnia is losing ground as a stimulant to be relied upon, but holds its own as a tonic. Camphor and caffeine are waning in popularity.

Relative to the use of digitalis, there is much discussion and much misunderstanding. Contrary to what was formerly held, Cohn[11] has definitely shown that the heart in pneumonia is influenced in the same way and by the same dosage of digitalis as the normal heart. Many men seem to forget that in the ordinary dosage it takes about three days to get any marked effect upon the heart with digitalis and are for this reason disappointed in its use.

Relative to exposure of pneumonia patients to the open air, practically all are now agreed that it is ideal in all types of pure lobar pneumonia, provided the patient be kept snug and warm. Some are equally enthusiastic relative to such treatment for broncho-pneumonia. Others condemn it bitterly. Head[12] reported from Camp Wheeler a mortality of only 3.2 per cent treated in the warm closed wards as against 13.9 per cent treated in the cold open wards.

Having here reviewed the salient features of the recent literature relative to the therapy of pneumonia, in order to present the matter more concretely, some personal observations may perhaps with propriety be made.

Within the past two years I have seen but few frank lobar pneumonias. I have been impressed by the small percentage of cases I have seen develop pneumonia following influenza in patients who have kept quiet in bed, in a room maintained at a comfortable temperature, day and night. I have likewise been impressed by the small percentage of pneumonia patients willing and able to remain in bed, in a comfortable temperature, from the beginning, developing the hemorrhagic type. I have noted further that, in the majority of cases developing the severe types, there was a basis, either of loss of sleep, of physical exhaustion, of mental upset, or an inability or unwillingness to maintain surrounding conditions as above set forth, and my mortalities have been among such individuals.

The picture presented to me in the cases of a severe broncho-pneumonia is that of one suffering from exhaustion of the vegetative nervous system; a picture almost identical with that of shock and the best results I have seen or have been able to obtain in treatment have been such in the onset as would act as a prophylactic in shock, and in the fully developed cases such as would benefit a patient suffering from shock. Such a treatment would manifestly exclude severe purges, any except the smallest doses of coal tar products, sponge baths, cold air, and all exertion either mental or physical: in short, a treatment directed to raising the immunity by conserving the vital forces.

Of drugs, opium, preferably in the form of codeine by mouth, or minute doses of morphine (1/12 gr.) hypodermatically administered, at sufficiently frequent intervals to control the cough and restlessness, has been of greatest value of all. Opium has its faults and glaring defects but as a circulatory stimulant, in small dosages as a producer of a feeling of well-being, and as a means of controlling cough

and thereby les-ening the flow of blood to the respiratory organs, it has no equal.

I have stressed the matter of a small dosage of opium for the reason that large doses tend to defeat the very purpose for which they are administered.

As an adjuvant, atropine is a close second to opium, but likewise best results are to be had with small dosages, about 1/600 gr. with the opiate, say hourly, till some effect be noted, then less frequently. Atropine not only tends to prevent the sweating incident to the use of opium, but in a measure controls the tendency to over-secretion into the bronchial tubes and the resulting blocking of the alveoli. Incidentally, atropine ranks among the highest as a respiratory and cardiac stimulant but, if pushed too far, the mouth and throat become unpleasantly dry and there may be retention of urine.

In order to sensitize the heart to digitalis action it has seemed advisable to begin all cases with a small dose of the tincture of the drug,—say 10 drops three times daily. This dosage does not upset the digestion yet is sufficient, should the circulation weaken, to enable one to quickly digitalize the patient by the administration of a half drachm to a drachm, at a dose, repeating as indicated.

As is well known, perhaps the most frequent cause of cardiac and respiratory embarrassment in pneumonia is gaseous distention of the abdominal contents, due either to toxæmia and exhaustion of the sympathetic nervous system as above referred to, or less frequently to the failure of food to digest, more particularly milk. For this reason, the diagnosis once established, frequent examinations of the abdomen have seemed in reality to have been of more value than those of the chest, and as an adjunct to the time-honored remedies, such as enemas and turpentine stupes, pituitrin has been of greatest aid. In fact, in some cases the results obtained have been little short of spectacular. To get the full benefit from its use, it should be given early and at regular intervals in such cases as show a marked tendency to distention. A small rectal tube introduced and allowed to remain in situ in severe cases, in addition to the above, has afforded marked relief.

As a quick pick-up for the heart and as a means of relief where there is an asthmatic tendency, adrenalin has seemed to aid, but its action is more transient. Hot coffee has also proven valuable. Hot mustard pastes applied to the entire chest early in the disease have undoubtedly been of very great help.

My experience with glucose intravenously has been limited but I believe it is destined to be of great assistance in such patients as will not be annoyed or upset by its use, especially those with a tendency to acidosis.

In the present state of our knowledge, the commonsense plan in treating any pneumonia, except type I of lobar, where the serum is available, would seem to be to forget the disease and to treat the patient.

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MEDICAL TREATMENT OF NON-TUBERCULOUS INFECTIONS OF THE LUNGS AND PLEURA EXCEPT PNEUMONIA.*

By GEORGE B. LAWSON, M. D., Roanoke, Virginia.

By far the most important of the acute non-tuberculous diseases of the lungs and pleura, aside from pneumonia, is empyema, and especially is this true since the advent of the epidemics of influenza. After the diagnosis of empyema is made and the pus localized, there is no medical treatment in the strict sense, but the condition is a surgical one entirely. And

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giving of medicine or using other methods than surgical is ignorant and criminal.

We usually regard the surgical procedure as wide drainage with rib resection, but in the last few years certain cases have been treated simply by inserting a small catheter or canula under local anaesthesia, thus making the drainage a minor procedure which is almost as simple as doing a pneumothorax, and for this reason has come to be considered almost under the head of medical treatment. This kind of drainage was impressed on me from the fact of seeing in consultation a number of very sick patients with empyema, at a distance from a surgeon and something had to be done immediately, and this method was adopted. Later on I have used it on a number of patients who were in good shape, and I must say I rather like it in some cases rather than the wide rib resections. The method of procedure is under local anaesthesia, to incise the skin with a knife, and then merely push the trocar through the chest wall and fasten the canula. After a few days a sinus is formed and then the canula can be drawn out and a lubricated catheter can be pushed in its place and fastened with adhesive. I have had a number of these flat trocars made of different designs: some with wide hilts so they can be fastened in, and some with an enlargement on the distal end of the canula to keep them in. The flat trocars are not made at the present day by the surgical houses except on special order. However, they were used years ago. Bell's Surgery, published in 1790, gives some excellent cuts, and Seidollot[1] in 1841 gives cuts of trocars and canulas with hilts to be retained, also suction apparatus, etc. All these types of canulas have some disadvantages, and lately I have been using a flat trocar simply to make a stab wound, and then insert a catheter; this has the advantage of being able to use suction if desired, is hardly as painful as the canula, and the patient can lie better on the affected side. This catheter should be changed each day so as to be sure there is no clogging. The opening in the chest wall can be made larger each day by putting in a larger catheter or by partly withdrawing the catheter and placing a small one beside it and the two can be pushed in nicely together.

The disadvantages of this method are that it is apt to give lots of trouble if attempted in a chest with thick walls, either fat or muscular, because it is harder to get through the chest wall, and secondly when the catheter comes out it is impossible to replace it. The catheter does not give the free drainage that is so much desired in all pus cases by surgeons. The catheters are more apt to stop up than are the larger drainage tubes; there is a possibility of causing bronchial fistula by the use of the trocar. The ribs are closer together in the back than in the front, and if a canula is left in position in the back it is apt to be very painful, and prevent the patient lying on the side. This type of drainage is unsatisfactory when made through the thicker parts of the latissimus dorsi muscle. It is a common belief that this minor type of drainage is more apt to cause chronic empyema; this is true unless one is very careful to see that tubes are removed frequently and that there is no obstruction.

And lastly the wide open method seems to be recommended by most surgeons. The advantages are that it is practically free from shock. If the patient is very sick this type of drainage is preferable to all others. It requires few instruments and no assistants; does not leave a large open wound to be infected; nor does it leave the chest wide open for a secondary infection; and lastly leaves little deformity. If the symptoms do not improve remarkably within a day or so after this type of drainage, it is better to have a larger opening made to see why the patient is not doing better.

I have used this method in sixteen cases. The first was in the country and gave temporary excellent results in an exceedingly sick woman until she could be brought to the surgeon; no attempt was made to keep permanent drainage. One case of general sepsis with turbid effusion died, and one patient with thick chest walls gave very disappointing results and had to be turned over to the surgeon. One is still draining, and one, a student, went home still draining. The others have gotten along very well. Two of these cases were drained in the office. There have been no recurrences.

In the above cases the patients were put on exercise as soon as possible, and were given bottles to blow water from one to the other. The use of suction did not seem to help much.

I would like to say under this head, that the average empyema case is better off in the surgeon's hands than in the physician's, even

using this type of drainage, unless that physician is very well acquainted with empyema and with the diagnosis of the chest conditions. I believe that in all medicine and surgery empyema is the one condition in which more good can be done by a good diagnosis and correct treatment than in any other condition, and that much harm can be done by such class of patients remaining in inexperienced hands.

I would like to consider here the time of operation. In the simple empyema following the lobar pneumonia, drainage should be done as soon as the diagnosis is made. In the broncho-pneumonia with early empyema and the primary empyema, due to streptococci, which have become so common since the advent of influenza, statistics have shown that the results are much better by simply aspirating for a few times until the pus has become thick, which may take probably a week or so, and then operating.

After pneumonia or after any acute chest condition, one finds a few cases which run a septic temperature, in which we may find some dullness with diminished breath sounds, yet one is unable to find pus with the aspirating needle. If the process is not tuberculous as shown by the sputum and by a competent X-Ray worker, it is better to have the surgeon explore the chest thoroughly by opening it. This point is emphasized by Ashurst.[2] I have had the surgeon open up three such cases, even when they were unable to aspirate pus under general anaesthesia. Moderately large pockets of pus were found in two of the cases; in the third a simple pneumonia was found. The mistake in operating on the third was possibly due to my not going into the history carefully enough. All three of these patients recovered.

The patient with a single fibrinous pleurisy usually comes to the physician for relief from pain. The best results are gotten by putting the patient in bed and using some form of counter-irritation, or by strapping the side with adhesive to lessen the mobility, or, as is frequently the case, the pain is so severe as to require a hypodermic of morphia. After a few days the symptom of the fibrinous pleurisy may clear up or the simple fibrinous pleurisy may form a pleural effusion. If the pleural effusion is small in amount and the patient is having few symptoms, this may clear up under proper medical care. Where this effusion is of any considerable amount, the best results are gotten by tapping the chest with a Potain aspiration and repeating these aspirations as often as necessary until relief is gotten. If one is careful in using local anaesthesia, and first incising the skin with a small knife or Hagedorn needle, the aspirating needle can be inserted with practically no shock or pain. One must remember that sudden death may occur in pleural effusion due to a number of associated causes, or even a change of position might produce death.

One may have death simply due to inserting a needle, and for this reason it is better to have the part well anaesthetized, preferably with novocain, or the aspiration may cause death due to taking out too much fluid. The Potain aspirator is one of the most useful instruments that we have, but unfortunately it has its disadvantages; after its use we are apt to leave it dirty in some place or other and on using it again we are apt to find that it is unsatisfactory at the critical moment; and each time before using it we should go over it carefully and see that the pump is working nicely, that all the tubes are clean, that the needles are not rusty, and that connections are good. In our hospital the Potain aspirator is the one instrument that usually does not work; however, with my own instrument I have very little trouble. Unfortunately, the pump has a place for attaching the tube on the compression side as well as the suction side. In my own experience I have found the pump to drop off and my assistant to replace it on the compression side instead of the suction side, and we were pushing air into the chest instead of withdrawing the fluid. As I use this for bleeding instead of cutting down on the vein, I almost had a death from the same thing. Now I have battered the other end of my pump so that it is impossible to make connection on the compression side. In tapping the chest one should use as rigid care and asepsis as in any major operation. Lambert[3] has recently made the statement that next to pneumonia, tapping the chest with a dirty needle has brought about more empyemas than any other cause.

One of the most important things about pleural effusion is the fact that so many are tuberculous, although we are unable to find anything definite at the time. Later on the condition develops into tuberculosis. If the family history is tuberculous, or the patient's previous

history is suggestive, the patient should be treated as a tuberculosis patient. If the patient does not suggest this, good after care should be taken of the patient, and he should be carefully watched from time to time for a possibility of a tuberculosis developing.

Many of our non-tuberculous lung abscesses follow nose and throat operations, or the pulling of teeth, and where we have a fairly typical history it is better, if possible, to get as good an idea of the condition as possible by a chest examination, and by taking stereoscopic plates in the upright position. This will help us differentiate from empyema or bronchiectasis.

A certain number of lung abscesses will clear up simply by rest and good care. Lord[4] analyzed 100 cases of lung abscesses at the Massachusetts General Hospital and of these 37 were unoperated cases, 7 recovered perfectly, 24 died, and 14 are untraced,—a mortality of 63 per cent. Of 62 operated cases, 10 completely recovered, 35 died, 14 had incomplete success, 2 died of T. B., 1 accident; a mortality of 56 per cent. It is only within the last few years that artificial pneumothorax has commenced to be used to any extent in this condition. Only a few isolated cases were reported until Tewksbury[5] in 1917 and 1918 reported twelve cases, and up to the present time has treated twenty-one cases with three deaths,[6] no deaths occurring within the last twelve cases. If the abscess is not amebic, nor due to a foreign body present in the bronchus, that must be removed, and if it is emptying into a bronchus I believe the best procedure is to try artificial pneumothorax just as we do in pulmonary tuberculosis. Tewksbury was unable to compress any case in which the disease had been present over 6 months, due to the adhesions that had formed. It is better to keep the lung compressed for several weeks after disappearance of symptoms.

One of our cases of multiple lung abscess cleared up after about six months under simple rest, good feeding, etc. I would like to report another in detail:

R. T. M., age 22, male, white, with the previous history good, came to the office November 21, 1919, with the history of having a throat trouble in March 1919, which was diagnosed Vincent's angina. Very shortly after this had his tonsils removed under ether. The next day was taken with pains in the left back and upper abdomen and left axilla. One week after tonsils were removed, he commenced to spit up large quantities of pus which has continued since then with remittent fever and loss of thirty pounds in weight. The physical examination showed a septic appearance, with slight dullness in left back, the sputum was negative to T. B. The stereoscopic plates showed a central lung abscess about 2 inches long, and about half full. A few days later artificial pneumothorax was commenced and given every day for several days, and then on alternate days until 2100 c.c. was put in. A plate was taken after each injection, and marked adhesions were found. One of these must have torn a hole in the lung because the abscess ruptured into the pleural cavity and a tube had to be inserted through the chest wall. The cough stopped in a few days and shortly after this the temperature became normal. The lung slowly filled out and showed no symptoms. The patient gained in weight and strength until he was apparently as well as before.

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THE SURGICAL TREATMENT OF ACUTE NON-TUBERCULOUS LESIONS OF THE LUNGS AND PLEURA.*

By DON PRESTON PETERS, M. D., F. A. C. S.,
Lynchburg, Va.

It is important to remind you that twenty minutes only is allotted me in which to discuss the Surgical Treatment of Acute Non-Tuberculous Lesions of the Lungs and Pleura. When you consider that this title includes, among other conditions, wounds, empyema, and abscess of the lungs, the utter impossibility of more than a brief mention of a few of the most important procedures will be apparent to you. The problem is still further complicated by the

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wide divergence of opinion among surgeons of to-day as to many points in Thoracic Surgery.

It is impossible not to be more or less influenced by personal experiences, yet in a reasonably unbiased way, I will endeavor to give you only the accepted methods or, when my own inclinations lead me to adopt one method in preference to another, reasons good or bad will be offered therefor in order that you may still be left as much in doubt as possible and as free to choose as before.

Embryology, anatomy, physiology and symptomatology will be mentioned not at all, or only in conditions where, for example, the symptoms indicate the line of surgical procedure to be adopted.

Violent blows on or compressions of the thoracic cage may result in rupture of the contained lungs without fracture of the ribs or even without solution of the continuity of the skin or underlying tissue, resulting in severe, even fatal, symptoms of shock or hemorrhage. On the other hand, such injuries, especially of the lower thorax, according to Crile, may show a grave resultant condition of shock with no accompanying injury of the contained viscera. In the first, immediate thoracotomy for repair of the damaged lung may be indicated, while in the other surgical interference would be but an added operative shock. The third type of resultant injury, the usual one, presents the fracture of one or more ribs with or without wounding of the pleura and lung by the broken, indriven fragments which may have returned to a safe position or may still be tearing the lungs with each painful effort at respiration. In differentiating these conditions, the physical findings, the result of the use of the diagnostic aspirating needle, the presence or absence of emphysema and hemoptysis, and, above all, the x-ray examination will be carefully considered. With all these not a few of such cases will be left to that elusive, but still actual, entity—Surgical Judgment—to decide, not what operation to do but rather whether to operate at all or to depend on morphia and complete rest for the recovery of the patient.

Wounds to me mean war wounds. To those especially interested, I would suggest a reading of the report from The Laboratory of Surgical Research of the A. E. F., published in the *Boston Medical and Surgical Journal* of April 10th, 1919. The time spent will not be regretted.

Small points of entrance or exit in perforating wounds, with no injury of the bony cage and no evidence of severe hemorrhage from either the vessels of the walls or the lungs, require observation rather than treatment.

In thoracic surgery, the importance of the iumediate, complete, and, unless necessary to later reopen for drainage of an infected hemothorax, the permanent closure of all "Sucking Wounds" is paramount, for the reason that, as Lilienthal states, this form of injury "Gives rise to the well known flapping of the soft tissues of the mediastinum with each respiration. This condition is extremely dangerous, not only because it diminishes the amount of intrapulmonary respiratory air in the uninjured side, but also because the motion to and fro of the heart itself forms the basis of a particularly fatal form of cardiac shock." This closure should be, if possible, by suture, especially of the parietal pleura; if not possible, then by wet sterile dressings snuggly applied.

Larger wounds of entrance and exit, or of exit alone, caused by ragged shell fragments or tilting rifle or machine gun bullets, with lacerated wounds of the lung caused by the projectile itself or the indriven parts of broken ribs, present a high rate of mortality. Those surviving long enough to reach the hospital were, on account of their condition, usually subjects for admission to the shock ward after temporary closure of the sucking wounds with dressings when possible, when not, by the slightest possible operative procedure. If they survived the initial hemorrhage and the superimposed shock such operative steps as were indicated could be done later.

Penetrating wounds added to the above problems the question of the removal, immediate or otherwise, of the foreign body. Small fragments of shell or rifle bullets located in the periphery of the lung, unless easily reached, could be treated expectantly by closure of the wound of entrance after the usual debridement. If the condition of the patient permitted, larger foreign bodies or foreign bodies close to the hilum, and therefore to large blood vessels and bronchi, should be removed by thoracotomy, if necessary with rib resecton, inflation of the lung with ether or preferably gas-oxygen anaesthesia and complete closure of the wound. Where destruction of tissue rendered closure of the parietal pleura impossible, the inflated lung could be sutured to the pleural edges

of the wound, muscle flaps used to plug the opening and further closure accomplished by plastic methods, or, if necessary, temporarily by wet dressings.

Hemothorax was a frequent complication. Its treatment, in my opinion, should not be immediate aspiration, as was so often practised, for this was followed, on account of relief of pressure by a continuation or reopening of the flow of blood. In some cases, pressure demanded the evacuation of the fluid. Here the treatment was operative interference and ligation of the bleeding point rather than a loss of additional blood by aspiration and the immediate subsequent refilling of the thoracic cavity.

The bronchi contain various organisms. The wounding of a fair sized bronchus means the direct communication from the mouth through the bronchus into the pleural cavity and so, through the wound in the thoracic wall, to the outside air. If the thoracic wound be not present, infection is not so liable to occur as the intra-thoracic pressure will prevent expulsion of the organisms from the bronchus into the pleura by cough or respiration. Relieve this pressure by a wound and infection of the pleura is almost certain to occur. To this, probably, as well as to the infection carried in by the missile and clothing is due the frequency with which empyema following thoracic wounds occurs.

Our experience with empyema before the epidemic of 1917 and since has shown clearly the necessity for differentiating separate groups before the proper line of treatment can be adopted. Four of these can be readily diagnosed taking as the basis the causative organism:—

1. Pneumococcus.

2. Streptococcus, including of course the streptococcus haemolyticus.

3. Pneumococcus and streptococcus.

4. Other organisms, including most traumatic empyemas.

Also three types, viz., single, multiple and bilateral.

Under Surgical Treatment instead of the old stereotyped Incise and Drain we now recognize the necessity for the careful consideration of an additional Where? When? and How? As regards the "Where" the same rule as formerly still holds good, i. e., at the most dependent portion of the cavity or cavities.

The second additional consideration, or "When" to operate is most important.

In our brief discussion of "Sucking Wounds", attention has been called to the very dangerous, often fatal, results apt to occur from the flapping of the soft tissues of the mediastinum, when an acute pneumothorax is produced. In two recent articles Graham has shown that, in the normal chest on the production of a unilateral pneumothorax, the protection to the lung of the unwounded side by the mediastinum is almost negligible and, further, that depending on the vital capacity "It makes practically no difference whether the opening is unilateral or bilateral provided the combined area of the openings does not exceed the calculated amount for the limits of safety."

In Group I these two most important points are not usually so carefully to be considered since, by the time the surgeon is consulted, the formation of fibrin and adhesions has so strengthened the mediastinum that the dreaded flapping does not occur, the already accomplished crisis has so increased the diminished breathing space present during the pneumonia that the relation between Vital Capacity and Tidal Air has passed the danger point, and thirdly, the patient's general condition, usually convalescent so far as the pneumonia is concerned,, does not render him nearly the same operative risk as in Groups 2 and 3. Therefore, not considering exceptions, which of course occur, it may be broadly stated that operation is indicated when the diagnosis is made. Indeed, it must be remembered that the longer the delay the more possibility there is of failure of the lung to expand and thus obliterate the pneumothorax remaining.

Groups 2 and 3, following measles, influenza, etc., present entirely a different picture. It is not necessary to recall the appalling mortality resulting from early radical treatment of these cases. Fluid forms early and adhesions later. Open drainage as soon as positive smears or cultures are obtained or the fluid becomes cloudy, means the production of pneumothorax before the mediastinum is stiffened and adhesions have formed, and, consequently, cardiac shock from the mediastinal flapping, the reduction in both lungs of an already greatly reduced breathing space, and the shock of an operation added to the burdens of a patient already overwhelmed with the toxemia of a still existing pneumonia. Another serious

danger, as Beck points out, is the absorption of streptococci from the wound of operation.

And so in these two groups the importance of WHEN to operate is far greater than How. Wait until the mediastinum is strengthened, until the empyema is walled off by adhesions, and, above all, until the pneumonia is definitely a thing of the past; in other words, until Groups 2 and 3, in all save the organisms present are reduced to Group I. It is well to emphasize the importance of no surgical interference, aspiration not included, during the presence of the pneumonia for, in addition to the toxemia, Graham has further brought out the important fact that the "pneumonia process may have so far reduced the breathing space that the Vital Capacity is practcally equal to Tidal Air." Then the production of a pneumothorax by even the smallest opening will asphyxiate the patient.

The perfection of the Surgical Treatment of any disease is usually in inverse proportion to the variety of operative procedures proposed. In empyema, we are offered our choice in selected cases, ranging from the severe primary major thoracotomy, of Lilienthal, through the old, simple and formerly fairly satisfactory costectomy with open tube drainage, down to the practically closed methods of repeated aspiration or the injection of 2 per cent formalin in glycerine as proposed by Murphy. It is impossible in our limited time even to mention them all and so it would seem better to discuss a few vital principles and leave the adoption of a definite method to the judgment of each individual surgeon.

In the early stages of Groups 2 and 3 pressure must be relieved and, since the fairly clear fluid is often teeming with organisms, a reduction of dosage can be obtained by aspiration with a vacuum aspirator and needle. In nearly every case this must be frequently repeated. Occasionally, though I have not seen it, cures are obtained. In the great majority of cases, when the proper time has arrived, drainage and ample drainage will be necessary. It is claimed that incision between the ribs many times gives sufficient drainage. On the other hand, the resection of 1½ to 2 inches of one, or even two ribs, surely and always does give this result, and adds so little to the operative shock as to make this consideration negligible save in the most desperate cases. For either method, local anaesthesia is to be preferred.

In all empyema operations it is important that the skin incision be so placed that, with the arms in the normal position, the superficial incision will not override the wound in the underlying tissues thus interfering with free drainage.

Since ultimate recovery depends, not only on drainage and so, sterilization of the cavity, but also on the expansion of the partially collapsed lung, then any method aiding or hastening any or all of these processes should be used. Dakin's solution properly prepared and properly used accomplishes these purposes in that it dissolves fibrin and so promotes drainage, exerts a definite antiseptic action, not only tends to prevent the formation of organized fibrin over the exposed surface of the partially collapsed lung, but also dissolves such as may have been formed and so accomplishes a chemical decortication, thus promoting the possibility of expansion of the restrained lung. It is not to be used in the presence of a broncho-pleural-fistula.

Both theoretically and actually, any measures tending to reduce the pneumothorax will encourage, to say the least, the tendency of the lung to expand; that is to say, the ideal method is one allowing free egress of drainage, facility for irrigating with Dakin's solution, and no ingress of air. I have not tried all but several methods and none is perfect. In all, care must be taken that the tube projects far enough into the cavity for drainage but not far enough to damage the expanding lung.

In addition to the external efforts at reduction of pneumothorax, internal efforts are of benefit. Use blowing bottles early and such exercises as possible at stated intervals daily. Especially see that the patient, by coughing and straining, endeavors to empty the chest of the Dakin's each time it is used. In addition to other things it is a splendid exercise. I have endeavored lately, by strapping the normal side, to add to the effect of these exercises on the collapsed lung. Complete sterilizaton of the cavity as shown by smears and cultures has not been with me an indication for cessation of treatment. As long as the cavity is growing smaller, even though slowly, as shown by its diminished fluid capacity, and the general condition of the patient indicates no walled off pockets or other untoward symptoms, the Dakin's is continued. When it is apparent that the expanded lung is everywhere prac-

tically in contact with the parietal pleura, the tube is withdrawn and the sinus allowed to close.

Even though progress halts for a week or more, decortication may be progressing, for often the diminution in size of the pneumothorax occurs by sudden spurts rather than a gradual lessening. This is easily explained by the fact, as Graham points out, that large pieces of the organized coating over the lung are cast off at times rather than a steady progress of the slow solvent action.

Multiple pockets, if condition of patient does not contra-indicate, should be converted into one by a resection large enough, when combined with the use of rib spreaders, to admit the hand. Pockets between the lobes and above the diaphragm should likewise be carefully sought for and sufficiently drained.

If, during the post-operative progress of an empyema case, signs of retained pus are in evidence, the following conditions are to be looked for: insufficient drainage of the single cavity, a walled-off pocket or pockets, or one of the numerous complications that may occur such as pericarditis, endocarditits, rib necrosis, mastoiditis, parotitis or even tuberculosis. Walled-off pockets may be drained through the original incision or treated as a separate lesion entitled to its own costectomy and post-operative treatment.

In locating secondary walled-off collections of pus as well as in the original diagnosis and during the progress of the convalescence, the X-Ray is invaluable. To me the diagnostic value of the aspirating needle is a *sine qua non.* Beck's paste is of definite value in both diagnostic work and certain chronic conditions, especially in those cases in which, on account of the presence of a broncho-thoracic fistula, Dakin's solution is not only painful but actually dangerous.

In bilateral empyema the same general principles apply. Contrary to quite a widespread idea, they may be synchronously drained when conditions justify operation, provided, as quoted above, with reference to the Vital Capacity, "The combined area of the openings does not exceed the calculated amount for the limits of safety." Otherwise, aspiration of both sides, or drainage of one with aspiration of the other must be adopted as a temporary measure until the progress of events justifies the more radical procedure.

Bell and Litchfield have pointed out the large amount of nitrogenous material thrown off in these profusely draining cases and the consequent importance of the dietary measures to be adopted.

So closely connected are lung abscess and gangrene that any attempt at differentiation is unnecessary. Wessler, in a recent analysis of 100 cases divides "Suppurative lung conditions roughly into two groups, (1) those due to the aspiration of septic material into the bronchi, and (2) the various primary lung inflammations, including both the frank pneumonias and the cases of so-called grip which undoubtedly represent unrecognized pneumonias".

Several methods of surgical treatment are advised. Cures are reported from the production and maintenance of an artificial closed pneumothorax. Thoracotomy is also recommended, though how this is in any way better than the closed pneumothorax, unless the abscess has ruptured intra-pleurally, is not apparent. The two methods of choice, it seems to me, are the two-stage operation of fixation of the involved area to the parietal pleura with subsequent incision and drainage of the abscess, thus protecting the pleural cavity from soiling and, most satisfactory of all, in suitable cases, a major thoracotomy with the removal of the entire involved area as in the case reported by Lilienthal. In this patient practically the entire right lung—the lower, middle, and greater part of the upper lobes—was removed with success.

The great advances in blood-vessel and intrathoracic surgery have changed embolus and thrombosis of the pulmonary vessels from among the hopeless and necessarily fatal sequelae of any surgical procedures to the point where their cure by operation is conceivable. Already this has been attempted several times but, so far as I have been able to find, without success.

The anaesthetic used and the method of its administration is, although not included in this paper, a most important consideration and aid in thoracic surgery. It is to be hoped that in the discussion this will not be overlooked.

Abe Martin says—"After all, th' best way t' double your money is t' fold it a couple o' times an' put it back in your pocket. An optimist is a feller that remains fer a circus concert."

INFLUENZA, IN THE PAST AND IN THE FUTURE.*

By WARREN T. VAUGHAN, M. D., Richmond, Va.

Epidemic influenza has been so widely discussed and rediscussed since 1918 that he must be a thoroughly conscienceless individual who will inflict upon his auditors yet another dissertation on this "shop-worn" subject. That it is a subject of the greatest importance will not be denied. That even after two years of clinical and epidemiologic study but little of value to the practising physician has been added to our knowledge of the disease is unfortunately a truth. But this should not discourage us. Many of the most valuable contributions to our knowledge of the disease following the 1889 epidemic were made from three to ten years later. It was nearly three years after the first epidemic spread before Pfeiffer announced the discovery of the bacillus which bears his name and which he believed to be the cause of the disease. It was not until in the late nineties that Leichtenstern published his excellent monograph, thereby clarifying remarkably our conception of the epidemic disease.

Little has been learned regarding more efficient therapy. Today, as formerly, the treatment in the presence of a pandemic must remain symptomatic. The use of convalescent serum offers some promise of therapeutic betterment, but during the stress of an epidemic this method could at best only be utilized on a few of the many ill.

Since 1918 the bacteriologist has acquired a vast number of facts concerning the bacterial flora of influenza cases. But he has been unable to demonstrate beyond question the causative germ.

The immunologist has made attempts to protect against the disease by the use of various vaccines. So far, the results have been inconclusive.

We must turn to the epidemiologist for information of the more recent advances in our knowledge of the disease. The epidemics are characteristically of such short duration, and we are so characteristically caught unprepared when they arrive, that investigators who must do their work during the epidemic prevalence are constantly at a disadvantage. The epidemiologist on the contrary, may acquire what information is necessary during the epidemic and later, at his leisure, study his records, correlate them, and draw his conclusions.

Time does not permit me to describe in detail the statistical enumerations, and the processes of correlation by which our conclusions are arrived at. I shall content myself with presenting before you a summary of the more important and the most interesting facts that have recently been established concerning the origin, pathogenesis and spread of this interesting disease.

The great antiquity of influenza is well known. Finkler says, "According to August Hirsch, the first influenza epidemic occurred in 1173 and he places it in his work as the first out of eighty". This has given the impression to some that influenza was unknown previous to that date. Leichtenstern has quoted Hirsch more accurately and, thereby, given an entirely different meaning to the statement. "August Hirsch says that the first epidemic that can be definitely said to be influenza occurred in 1173". But there is good evidence that epidemic influenza was known by the Hippocratic writers, at least three centuries B. C. Probably this disease is as old as all other infectious maladies,—as old as the human race.

Influenza between 1893 and 1918. The last pandemic of influenza occurred in 1889 and was followed by recrudescences up to 1893. But since that time the disease has been present in widely disseminated areas, where it has often reached epidemic prevalence. In England and Wales, at no time since 1893 has the death rate from influenza been as low as it was in all of the thirty years preceding 1889.

In 1900 and 1901 mild epidemics of the disease were reported from cities throughout the United States and also in parts of Canada, the West Indies, Mexico. France, England, Germany, Denmark, Bohemia, Turkey, Spain, Malta and Honolulu.

In October, 1901 there was a mild epidemic in Georgetown, S. C., in China in 1902, in Laredo, Texas, and in Missouri in 1903, in the West Indies in 1904, and in Ecuador in 1906.

In the winter of 1907-08 there were epidemics which have been very well described in Pittsburgh, Baltimore and New York, while at the same time the disease assumed epidemic tendencies in the Rhine Valley.

We find similar descriptions of small local

* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

outbreaks, covering small or wide territories, in nearly every year up to 1918. There is always great difficulty in identifying these outbreaks. Clinically, the cases resemble influenza. Also, without doubt, they are due to a contagious virus; but the most characteristic feature—the tendency to become pandemic—is lacking. But the epidemiologic features, the short duration of the outbreaks, and the character of the curves of incidence help to establish the identification.

In December, 1915, and January, 1916, influenza was epidemic in the United States. It first attracted notice in the vicinity of Denver. It was reported as being epidemic in twenty-two states, including all sections of the country.

There are those who claim to have seen individual cases of the disease in the U. S. Army camps in 1917. Similar claims are made for the British Army, and in the same year an outbreak of disease resembling influenza was reported from the German East front.

The deduction to be made from these observations so far is that influenza is a widely distributed disease, the virus of which exists in a state of low virulence in many or all parts of the civilized world, and that from time to time the virulence in certain localities becomes strengthened to such an extent as to cause local epidemics of the disease.

Source of Pandemic Influenza. The date and site of onset of the last great pandemic are subjects concerning which there is no conclusive information. There have been small outbreaks of clinical influenza with epidemic tendencies at one place or another during nearly all of the intervening years since 1889. In all of them the question is often as to whether they were true influenza, and also assuming that some were true influenza, how many of them should be so included. There is no one point in the last few years at which we may say that influenza which had previously been non-existent started from a single focus and spread throughout the world.

It follows from the experience of 1889 that we should attempt to find an endemic focus and to follow the progression of the disease. It is safe to say that once having become pandemic, the disease spread contiguously as it had thirty years previously, by transmission through human intercourse. But which of the several local outbreaks of the preceding years was the direct progenitor of the great pandemic? Three hypotheses must be considered in a discussion of the site of origin of the disease. *First*, the disease may be endemic in some one focus, such as Turkestan, and, like Asiatic cholera, spread thence at intervals over the earth. In this case, the inter-pandemic cases and outbreaks would be designated pseudo-influenza, similarly to the disease known as cholera nostras. *Second*, the disease may be endemic in two or more foci, perhaps one in the old world and one in the new. The simultaneous onset in the spring of 1889 in three such widely separated localities as Turkestan, Greenland and Athabaska favors such an hypothesis. *Third*, the virus may be universally distributed, existing as a rule in avirulent form. From time to time an enhancement of virulence in different localities produces local outbreaks. At great intervals, usually decades, the invasiveness becomes increased to such an extent that the disease finally starts on its mad career around the earth. It is not impossible that this great enhancement should occur simultaneously in more than one locality.

Periodicity. Attention has lately been focused on the third theory—that of a wide distribution of a relatively avirulent virus. Why is it avirulent and under what circumstances does it undergo an enhancement of its invasiveness? It has been suggested that the virus causing the disease has a life cycle, one feature of which is a periodic waxing and waning of virulence. The virulence increase would then be an intrinsic factor of the germ itself. Environmental influences would play a very minor part. Brownlee and Stallybrass have been foremost in this study of periodicity. They have charted the occurrence of influenza and pneumonia deaths in London and Liverpool by weeks since 1889, and, using the method of the periodogram, find that, if successive thirty-three week periods are superimposed, a single consolidated curve results. They infer that influenza tends to recur at thirty-three week intervals. Reasoning thus, Brownlee was able in an article published in November, 1919, to correctly predict the recurrence early in 1920. Stallybrass discovered three waves in his periodogram, and inferred that there may be three separate influenza viruses endemic in Liverpool, each with thirty-three weeks periodicity, but occurring at different times.

But there are several drawbacks to the method of the periodogram. *First*, they have charted deaths from influenza, bronchitis and pneumonia. This at best is but a group of diseases. *Second*, the death rate is no accurate indication of the incidence rate. *Third*, a periodogram to be of value must be composed of waves, all of nearly equal dimensions. The waves of the two last pandemics have so over shadowed the lesser intervening waves that the latter have disappeared in them. Spear finds that if there be any periodicity, it is more nearly around one year intervals,—that the variation may be seasonal.

We may summarize the subject of periodicity in saying that no exact intervals have been determined and it has not been demonstrated whether or not the variation in virulence is due to activity within the virus, or to environmental changes, or to both.

Nevertheless, a tendency to recurrnce at longer or shorter intervals is one of the most characteristic features of the disease.

Origin and Spread of the 1918 Epidemic. We now have some information concerning the direction and manner of spread of the disease during the pandemic. Influenza was first noticed in the United States early in March 1918. By the end of the month it had become more disseminated in very mild form over many of the states east of the Mississippi and a few west of that line. The following month the disease appeared in France. In the American Expeditionary Forces it first appeared at the base ports which were receiving troops from the United States. During this month the disease had reached the allied Western front, the German front had become infected and probably the disease had started on its travel inward into enemy country. In May the disease had spread from France to Scotland, Spain, Greece and Egypt. In June, England became infected, as also Switzerland, Germany, Austria and Norway. In this month the disease had reached as far as South America and India. In China on the 15th of June there was reported an epidemic of a disease resembling dengue which affected fifty per cent. of the population in Chefoo and Shanghai, China. This disease may well have been influenza. During July the disease had spread through Germany, appearing in the cities toward the West earlier than in Berlin and other more Eastern cities, including Vienna. In July the disease had spread to other countries of Europe and was again reported in China and India.

During its course through Europe influenza had developed a greatly heightened virulence and toward the end of August it returned to the United States in a reverse direction from that of its first spread and entering the country at Boston, it spread to the West and South until the entire country was covered. The West Indies were invaded early in August and in the same month the disease had spread through India as far as the Punjab. In September the epidemic continued through the West Indies, attacked Mexico and Canada, and had attained such remote localities as South Africa Union, Senegal and Korea. In October the spread was particularly distributed through South America, and in this month again remote localities such as Alaska, New Zealand, the Hawaiian Islands, Australia, Madagascar, were reached. Islands, which although not very remote, were isolated except for the arrival of occasional ships, such as Cuba, the Azores and the Canary Islands, were first attacked in October. In November the spread continued throughout the world and among the more remote localities should be mentioned Samoa, Arabia, and Iceland; in December, Lapland, the Society Islands, and the Fiji Islands.

It is particularly of interest to follow the spread of the disease from France in Europe. Perhaps the chief characteristic is the distribution equally to the north and south from that country. In May it spread to Scotland, and to Spain, Greece and Egypt. In June the spread was in three directions, to England and Norway on the north, to Switzerland, Germany and Austria on the east, and again into Spain and Italy on the south.

A most important observation made by MacNeal is that French physicians practicing among the civilian population were perfectly familiar with the disease when it appeared at Chaumont in April, 1918, that they designated it as La Grippe and stated that it had been extensively prevalent in the civilian population of Chaumont from March 15th to May 15th, 1918. This observation of influenza occurring in France at almost the same date as the first outbreaks in the United States is a matter of great interest. It has also been stated by Mc-

Nalty and by Carnwath, who quotes Kabeshima and Lee, that the disease was prevalent in epidemic form in China and Japan in March, 1918. We have here three foci from which the disease may have primarily originated. There are two possibilities: *first*, that it originated in all three foci and spread to all parts of the world from each; *second*, that the virus, distributed throughout the world, acquired high virulence in all three localities, causing small epidemic outbreaks but that the virus from only one of these places finally became so exalted as to cause the pandemic. Did the pandemic disease originate simultaneously in France and the United States? One fact seems certain, that the influenza which attacked our troops in Europe was influenza imported from the United States. We have seen that it first appeared in the American Expeditionary Forces at the base ports. Alberto Lutraria, Health Commissioner of Italy, has reported that the disease was brought to that country from America. A point of significance is the fact that during March and April there was an unusually large troop movement from the United States to the American Expeditionary Forces.

MacNeal says: "The suggestion that the epidemic was introduced from America is supported by the fact that it appeared at a time when large numbers of Americans were arriving in Europe, which is indeed an outstanding feature correlated in time with the onset of the epidemic".

Recurrences in the Winter of 1920. The pandemic of the autumn of 1918 was followed in most localities by one or two recrudescences, which lasted into March of 1919. Then ensued a period of relative quiescence which lasted until January of 1920. But during the intervening time scarcely a month elapsed without some report of epidemic prevalence of the disease in some part of the world.

Early in 1920 true epidemics occurred in most of the cities of the United States. In them a definite path or direction of spread over wide territories could not be discerned. The first prevalence occurred in Kansas City and Chicago,—far inland, and apparently totally independent of earlier prevalences in Europe and South America. Here, as in 1891-93, the outbreaks appear to have been due to the pandemic virus which had remained quiescent in all these localities. We may still describe them as numerous endemic outbreaks; even though in small contiguous territories there was frequently a definite direction of spread.

Outlook for the Future. When may we expect the next outbreak of influenza? Will it be mild or severe? Will individuals who have already had the disease be protected? What measures can we advise towards mitigating the damage?

The disease will surely return. An influenza period usually lasts from three to five years. We may say that the present period started, roughly, with the December, 1915, outbreak in this country. The course is about completed. But there is no uniformity. It may last longer. The probabilities are that there will be a moderate increase in the number of influenza cases during February and March of 1921, but that the disease on the whole will assume an even milder form than it presented in 1920.

Immunity. Is there any immunity to the disease? The author found, in a survey of ten thousand individuals in the City of Boston during the 1920 outbreak, that twelve per cent. of all individuals who had had the disease in the autumn and winter of 1918-19 had a second attack in 1920, while nine per cent. of those who had had no previous attack fell ill. Here we are faced with the phenomenon of equal incidence in the two groups. If anything, it was slightly greater in the group which had previously had the disease. There was no evidence of protection in individuals who had had the disease on an average from ten to seventeen months previously. This has been the experience of numerous other investigators in both the last epidemic and in former epidemics.

But there must be some degree of immunity, if even of short duration. Otherwise, we would be faced with the phenomenon of individuals falling ill with rapidly successive attacks, indefinitely repeated. The work of several investigators has established that a relative immunity exists for at least three months following an attack. This period may actually be somewhat longer.

Preventive Measures. In the presence of an epidemic, what preventive measures should be enforced? Few are of great value but certain ones are clearly indicated. Crowd gatherings should be prohibited. In Boston, in 1918 there were three crests to the curves of in-

cidence. The first followed by a few days the peace day celebration of November 11th, the second occurred during the week after the Thanksgiving holidays, and the third occurred during the time of Christmas shopping. Similar examples are numerous.

The closing of schools has little value. In Chicago, Jordan found no correlation between school activities and incidence. In fact, the incidence was highest following the Thanksgiving recess. Winslow and Rogers reached similar conclusions for Connecticut.

Living conditions within the family play a part, a small part, in the incidence of the disease. The author found in a study of 2117 families that the incidence was slighty greater in those families living under crowded conditions than in those in roomy quarters. It was also somewhat greater in dirty households than in clean ones, even in the same section of the city. Finally, we found that the incidence was greater in individuals sleeping in the same bed with influenza cases than in other members of the household.

We are all familiar with the work of Lynch and Cumming in which they conclude that the disease is often transmitted through improperly cleansed eating utensils.

What advice, then, shall we give our patients in the presence of an epidemic?

First: Avoid crowds.

Second: Avoid crowding in the family.

Third: Sleep alone.

Fourth: Pay particular attention to personal hygiene.

Fifth: Boil all dishes, etc. after meals.

Sixth: Do not eat in insanitary restaurants.

Conclusions:

The virus of influenza is distributed throughout the world, in an avirulent form. Nearly every year, mild outbreaks occur in one locality or another. The 1918 pandemic probably took its origin in the United States. The disease was, however, also present in France and in China almost simultaneously with its first spread in this country.

Immunity to the disease lasts in general more than three months but less than a year or a year and a-half.

Cleanliness and over-crowding both at home and in the community at large are factors in the rapidity of spread of the disease.

St. Elizabeth's Hospital.

Discussion of Symposium.

Dr. P. T. Southall, Amelia:—I do not care to talk much about the treatment of influenza, because we know that no one has found any specific treatment for it. I avoided giving coal tar preparations but, when these were indicated, I gave opium instead. On one occasion, when I visited four families of negroes close together, who had a large number of children ill with influenza, I instructed that they be given castor oil, followed by copious drafts of water or lemonade, and they all got well. I presume that the full drafts of lemonade or water eliminated the poison. In the epidemic of 1889, no negroes in this section had influenza, but it was prevalent among the white people, and four or five of them died with it or of pneumonia following it. I think the immunity of negroes was due to their staying out doors, while white people stayed in doors.

During the last epidemic, influenza was very prevalent among the colored people in Amelia. We have two large tobacco factories there now, and the disease spread out from them.

Dr. Virginius Harrison, Richmond:—Thirty years ago in our epidemic older people had it and died very rapidly; this last epidemic younger people had it. From my experience in the other epidemic the people who had it then did not have it this time. Those who had it 30 years ago were immune, and did not have it this time.

Dr. J. Bolling Jones, Petersburg:—There is one point in Dr. Vaughan's excellent paper which I wish to discuss. That is the matter of immunity conferred by influenza. If I understood him correctly, he stated that only in about 12% of cases was any immunity at all produced, and this lasted only for a period of six months. This is decidedly at variance with my own experience and judgment. My opinion is that one attack of influenza confers immunity in practically every instance. The main point in dealing with this issue is as to whether or not the given case had influenza in the first instance, when a diagnosis is made in a subsequent illness. We all know how prone we are to call every condition we see influenza when the disease is prevalent.

My impression has been formed entirely upon my own work. During 1919-20 I only had two or three of my own patients tell me, when making a diagnosis of influenza, that I had said before that they had it in the epidemic of 1918-19. In a great many instances, and of this I am very positive, I saw certain members of a family taken with the disease in the first epidemic and these went through unscathed, when the others went down in the last epidemic. We all know that in both of the late epidemics to see a case over fitfy years of age was rare; again, that in most cases where there was an old person in the home, we usually had a nurse for the younger ones. In fact, the matter of immunity conferred is the only comforting factor to me in considering this awful scourge, especially since thus far we know not "whence it cometh, nor whither it goeth," and in the matter of treatment we are perfectly at sea.

Dr. T. Edwin Baird, Norfolk:—Unlike my friend, Dr. Jones, I am convinced that you can have influenza twice and, speaking from personal experience, I say that had any of you been as sick as I

was on the second go round, you would no longer question this fact, but would be scared as to the third attack.

Dr. J. Shelton Horsley, Richmond:—I want to discuss Dr. Peters' excellent paper and call attention to a few important items. Certain features of drainage sometimes are neglected, at least, neglected in the matter of following the biologic principles that are involved in drainage. In the peritoneal cavity we make a practice of sticking a tube down to an abscess, and expect to drain it up-hill. This is usually successful. This is because the peritoneal cavity contains an enormous amount of lymphatic channels and spaces, and the irritation of the tube causes a marked outpouring of lymph in an attempt to extrude the tube. In this way the septic products are also leached out. In the pleural cavity, however, there are few lymphatics as compared with the peritoneal cavity and consequently, gravity must be utilized in drainage here, so the tube is placed at the lowest point. When negative pressure is utilized in drainage, the tube being the natural outlet, attracts secretion in somewhat the same way that it is drained out by gravity.

The opening of an empyema cavity in the early stages before sufficient resistance against infection has been built up in a body is often disastrous and should be done with the least possible trauma. This follows the same principles that have been known for a long time in the bad results that often follow the opening of an abscess before it is "ripe."

Dr. A. B. Hooe, Washington, D. C.:—When we were having so much influenza in 1918, the records all show a mortality of 70%. Dr. Peters had an idea that he could probably use the so-called "closed method" treatment, but if you are not familiar with it here I would recommend it as well worth knowing. The cases were allowed to go on, many of them, until they were made out, then taken in, and many died immediately. The idea was conceived that there might be trouble after all, and if he got pus, all right; and if not, then try anything under local anesthesia, which was often done without moving the patient from the bed. The pus is not allowed to escape rapidly. Clean out with syringe very carefully, then pus is slowly drained off, and in some instances it took over an hour. After the pus is drained off, then the patient is washed out. Put in the cavity a tube which will seemingly fit it, withdraw the pus, leaving in the tube. Then the pus can pass out through this tube. The tube is left that way for a few hours; then the cavity is again washed out. After 24 hours irrigate with syringe, using Dakin's solution. The temperature of these cases is often 103 at the hour of operation. The next day it would be practically normal. I have seen these cases operated on with a temperature of 103, and sitting up in bed the next day feeling pretty comfortable, walking on the porch on the third or fourth day. These patients are never operated on under general anesthetic. They feel the injection of the needle, which is practically all the pain they have. The chart of the army and navy shows less than 3% mortality, and those cases were known to have trouble a week before they were brought in. Quite a number of cases were operated on. The tube was left in and left hanging down. In a day or two the patient was walking around. The patient would walk in, take off his shirt, and in short time put it back on, walking around again. No trouble to take care of them; get well in days, as compared with weeks under the older method. To show the advantage, they had a number of cases in drainage for weeks. Those cases were cleaned up, the old wounds closed; then the new method used and those cases cleared up rapidly. I do not think any method brought out during the war had as much result as the closed method did.

Dr. H. A. Burke, Petersburg:—We who served in the recent war had the opportunity of observing a large number of suppurative pleurisy cases. I am an advocate of the closed method and late operation. In my hands this method was the most satisfactory. I do not like irrigation with Dakin's solution, which was used extensively by some. I prefer irrigation with boric acid solution.

Late operation reduced the mortality from 34.7% to less than 3%. X-ray has to be used frequently in order to scientifically treat by the closed method.

FOREIGN BODIES IN RESPIRATORY TRACT AND THEIR REMOVAL BY THE LARYNGOSCOPE AND BRONCHOSCOPE.*

By J. E. DIEHL, M. D., Norfolk, Virginia.

It is not my intention to bring anything new before this body of medical men, but I think it may be of some interest to you gentlemen to have this subject presented in a form of personal experience of sixteen cases referred to me, with a history of a possible foreign body somewhere in the body.

While my results in some of the cases were not most gratifying, I cannot but feel encouraged, that what little work I have done in this direction had not been in vain. I have taken the liberty in this paper to mention three cases that anatomically come under the gastro-intestinal tract, but owing to the close proximity of the foreign bodies to the larynx, I thought it well to mention them. The first five cases had to deal with sand burrs that lodged between the vocal cords in children whose ages ranged between 6 and 9 years; all were colored, except one, and they all lived in the country; being of poor families, the care and nursing of the little ones were no doubt neglected. The history of the accidents was practically the same in all cases, as follows:—

A healthy child, while playing with other children, suddenly was seen to fall to the ground and be taken with a coughing and choking spell, followed by difficult breathing, aphonia and great anxiety. On admission, which was within 24 hours following the acci-

* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 27th, 1920.

dent, the breathing was labored, the facial expression that of anxiety, aphonia in all the cases and no temperature. Without an anesthetic, general or local, the patient was placed in Boyce's position and the foreign body removed by the laryngoscope and the patient allowed to go home immediately thereafter.

Case 6.—A boy, 9 months of age, while eating a piece of raw or uncooked Irish potato, was suddenly taken with a paroxysm of coughing, choking and became cyanotic. Six hours after the accident the child was admitted in a prostrated condition, the breathing labored, cyanosis well marked. On laryngeal examination a piece of uncooked Irish potato was located between the vocal cords and removed by the laryngoscope without an anesthetic, and the patient allowed to go home immediately thereafter.

Case 7.—A boy, 9 months of age, suddenly taken with a coughing and choking spell and labored breathing. The mother could not account for this paroxysm of coughing until she missed a safety pin she had taken off the child in changing its clothes. On admission, the child seemed to be fairly comfortable, but was breathing with some difficulty; he had no temperature. Without general or local anesthesia, the child was placed in Boyce's position and a laryngoscopic examination was made and an open safety pin was found between the vocal cords, with the point protruding upward; the pin was removed by the laryngoscope and the child allowed to go home the following day.

Case 8.—A boy, 13 months of age, was suddenly taken with a choking and vomiting spell while he was being dressed, and the mother was under the impression that the baby put something in its mouth but was not sure what it was. She noticed that he had difficulty in swallowing and would regurgitate liquid. On admission the following day, the child nursed the breast, but had difficulty in swallowing and the milk would flow from its lips. He seemed to be uncomfortable, but did not look sick. Esophageal speculum was introduced and a closed large safety pin was lodged in the right pyriform sinus that extended over to the left in a horizontal position. The pin was removed and patient allowed to go home the same day.

Case 9.—A colored boy, 2½ years old, was referred by Dr. Land, of Norfolk, with this history. Six hours before admission the patient swallowed a five-cent piece. He immediately began to vomit and he would hold his hand to the upper anterior chest as though in pain. A fluoroscopic examination was made by Dr. Jas. W. Hunter, of Norfolk, who beautifully demonstrated the coin opposite the third thoracic vertebrae. The parents were instructed to take the child to the hospital for esophageal introduction. The instructions were not carried out and the patient was not heard from; evidently the coin passed down into the stomach.

Case 10.—A colored boy, 9 months of age, was referred by Dr. Jones, of Portsmouth, Va. Several hours before admission, while playing in the sand and gravel, he was suddenly taken by a paroxysm of coughing and choking and vomited frequently on the way to my office and four times during the half hour spent in my office. The child was sent to the hospital for further examination and, before an examination was made, the mother took the child home, against my advice. On the following day the child was reported well. A diagnosis in this case was undetermined.

Case 11.—A colored boy, 9 months of age, while playing on the bed with peanuts, was taken with a choning spell of several minutes' duration. The following day he ran a fever and had an irritating cough; on the second day the mother said he began to rattle in the chest. The condition grew worse from day to day and on the fifth day he was admitted to the hospital in an exhausted condition; temperature 102½° by axilla; breathing labored and a wheeze audible across the room. Physical examination by Dr. Sutton showed a general diffuse bronchitis, more prononunced on the right side, percussion note impaired, and chest movement on the right limited. A Roentgenogram, taken by Dr. Roach, showed a shadow on the right side. Without an anesthetic, local or general, the bronchoscope was introduced and a great amount of mucopus was removed by the sponge suction method; the mucous membrane was swollen and red from the larynx down to the smaller bifurcation. After several minutes' instrumentation without locating the foreign body, I did a tracheotomy to assist in ridding the mucopus and to let air into the lungs with the idea of improving the general condition, so that a subsequent bronchoscopy could be done without jeopardizing the patient. Th child improved slightly after the tracheot-

omy and on the third day, while the tube was being changed, a quarter of a peanut kernel was expelled through the wound. The child immediately began to improve and on the fifth day the tube was removed and the patient discharged from the hospital, with instructions to report at my office for dressing. Within a week from leaving the hospital the tracheotomy wound had completely closed and the child was in perfect condition.

Case 12.—A boy, 9 months of age, was referred by Dr. Land, of Norfolk. Three days before admission the child was playing with peanuts, when suddenly taken with a paroxysm of coughing and choking, became black in the face. The following day he had temperature, slight cough, disturbed breathing. On admission, the child was breathing bad, general appearance of toxicity and exhaustion,temperature by axillae 101½°. Physical examination by Dr. Bland, of Boykins, Va., revealed a diffuse bronchitis more marked on the right, percussion note impaired on the right. Laryngeal examination was negative as to false membrane, but the mucous membrane was red and swollen in a uniform manner. The bronchoscope was introduced and a copious amount of mucopus was removed by the sponge suction method. On account of the patient's exhausted condition I deemed it best to do a tracheotomy, with a view of draining off the secretion and allowing air to the lungs, with the intention of introducing the bronchoscope after physical condition improved. Bilateral lobar pneumonia set in and the patient died on the second day following the operation. While I did not locate a foreign body, I feel reasonably sure that I was dealing with peanut bronchitis, or as termed by Dr. Chevalier Jackson, arachidic bronchitis, basing my diagnosis upon presumptive evidence of child eating peanuts, rapid onset of diffused bronchitis with marked exhaustion, aphonia absent, the typcal bronchoscopic picture with absence of laryngeal membrane.

Case 13.—A white child, 3 years of age, referred by Dr. Morrison, of Suffolk, Va. The history of this case is practically the same as that of Case No. 12, except the child was very toxic and exhausted when I saw it three days after the accident. I examined the larynx to be sure there was no laryngeal diphtheria, then did a tracheotomy, in view of the fact that the patient was not in a fit condition for bronchoscopy. The child immediately began to improve after the tracheotomy and on the 5th day the temperature was normal in the morning and 99 in the afternoon, and the breathing practically normal, with the exception of a few scattered rales. The child was taken home, with explicit instructions that further trouble would probably develop. It is four months since patient left the hospital and, as far as I can ascertain, the child is in good health. I question the authenticity of the report. Diagnosis of arachidic bronchitis was made.

Case 14.—A white woman, 28 years of age, referred by Dr. Wesley Williams, of Norfolk. For the past two years patient complained of difficult breathing and pain in throat when swallowing. She had consulted a number of physicians and they all advised her that she had no growth or disease in her throat. In spite of the doctor's advice she insisted that there was something wrong in her throat and insisted upon an examination. A physical examination by Dr. Wesley Williams was reported negative. Under local anesthesia an esophageal speculum was introduced, the larynx and upper esophagus were found negative.

Case 15.—A man, 60 years of age, referred by Dr. Ferebee, of South Norfolk, Va. History of being unable to swallow for several days, and, when an attempt was made, he would regurgitate; he firmly believed he could not swallow. He was given ice cream in my office which he swallowed without any difficulty or regurgitation. He insisted that a foreign body was lodged in his throat and consented to an esophageal examination. Under local anesthetic the esophageal speculum was introduced and no foreign body or diseased condition located. The following day he stated that he was feeling all right and has continued so up to the present date. Eight months have elapsed from the examination.

Case 16.—A white woman, sixty years of age, referred by Dr. Byrd, of Norfolk, had complained for several months of difficulty in swallowing and a constant pain in the throat, which pain was not influenced by the act of swallowing. A report of the physical examination was negative. The patient insisted that there was something in her throat and was anxious for examination. Preparation was made for the examination. When she saw the

esophageal speculum, she decided that she would not be examined.

Conclusion: I have given a brief resume of my personal experience in these cases and would like to sound a note of warning to you, especially to the general practitioner, of the seriousness of peanut cases. While all foreign body cases are serious, the peanut cases are more serious and should demand immediate operative interference before the patient becomes too toxic or exhausted. Quoting Dr. Chevalier Jackson, it is wise to do the tracheotomy early and not wait for the signs of exhaustion and intense toxemia, which may render the operation ineffective. The ages of these unfortunate individuals are very striking. It is characteristic of babies to grab hold of objects and very frequently seem possessed with a resolute purpose to put them in their mouths. All of these cases were in families of reduced circumstances, consequently, the nursing was much neglected. The cases of sand burr are interesting from the fact that they occurred in children that have outgrown the characteristic tendency of the baby age above mentioned—the rough and tumble age, if I may so term it, when they run, tumble, and play rough, which occasions them to make forced inspiratory efforts with mouth open, which explains how easy it is for them to draw these light sand burrs in the larynx.

The last three cases, except one, occurred toward life's journey's end, when we are apt to be confronted with either organic or functional disturbance. These three cases possibly belong to a neurosis, hysteroid in character, and the psychic effect of introducing the use of the speculum has been stated by different authorities to be a good therapeutic agent.

337 *Monroe Bldg.*

THE CARE OF OBSTETRICAL CASES IN REMOTE COUNTRY DISTRICTS.—THE COUNTY HOSPITAL.*

By I. S. STONE, M. D., F. A. C. S., Washington, D. C,

From the best information obtainable, a few facts stand out prominently regarding the maternal death rate in this country, which should receive our careful attention and consideration. It appears to the writer that the care of the expectant mother and her safe delivery are of the utmost importance and that the residents of our extensive and often remote rural districts are not getting their due. When we compare the population of the country with that of cities, it is easily seen that the latter have almost unlimited facilities for the care of all patients while the maternity cases in the country are poorly provided for, although 50 per cent of our population reside in the country.

A few facts may be mentioned which appear to prove the great need of additional measures of prevention against a high maternal mortality in the country. Of sixteen countries in which reliable statistics are collected, the United States stands fourteenth in the number of maternal deaths from childbirth. Thirteen countries save more mothers than we are saving.* Only two, Switzerland and Spain, show a larger death rate. In the United States, sixteen thousand women die annually of childbirth or the consequences thereof, while the morbidity is beyond computation.

One of the most reputable of statisticians is Dr. Dublin, of the Metropolitan Life Insurance Company of New York City. He says that one woman in every 185 confinements dies in childbirth, the mortality being higher than that of coal mining or in the railway service. And that is not all, for puerperal septicæmia furnishes a death roll almost as long as that of tuberculosis, the most fatal of all diseases.

The number of deaths in professional hands is large enough, far too large, and ought to be greatly reduced, but there are far too many women coming to delivery amid unclean and unwholesome surroundings which constitute a peril and danger to human life that should be prevented by the State. I allude to the midwife question and wish to quote from the registrar of Vital Statistics of Virginia, Dr. Plecker. In the year 1919

59,643 children were born alive.

2,723 were still births.

23,035 women were attended by midwives.

983 still births occurred when midwives were in attendance.

Twenty-three thousand and thirty-five women were attended in childbirth during the year 1919 by a class declared by a competent observer to be the "most ignorant and dirty negro women to be found in the community." It is estimated that 15.2 in 100,000 of white

* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

* The countries above mentioned are the most progressive and highly civilized in the world.

women and 26.1 in 100,000 of colored women die annually from childbirth. From the Virginia figures we gather that about 500 women die from childbirth and its consequences each year. No additional comment should be necessary to show a need for some change here, for if we cannot remove the midwife from this business we ought to remove the woman from the danger of having such attendance.

The Benefit of Hospital Care in Midwifery.

Disregarding reference to the comparative skill of professional men, the hospital has shown how the study of groups of cases may throw light upon many hitherto difficult problems. In no instance is this more clearly shown than in the use of the Wassermann test for syphilis and the relation of this disease to cases of abortion and still births. But it is not necessary for me to speak of what every one knows but rather to call your attention to the subject of hospitals which may fill an important place in rural life, especially in obstetric practice.

The County Hospital.

The rural or county hospital should prove an important aid in bringing nearer to our people in this largely agricultural State many if not all of the conveniences and safeguards which surround the sick elsewhere. This applies, in my opinion, quite as definitely to the obstetric practice, as to any, whether medical or surgical. Besides the Health Department, the Public Health Service and the work of the Visiting Nurse (for the work of all of whom I cannot speak too highly) in teaching and applying sanitation and in every way promoting the health of the public, it remains for the physician to actually have charge of maternity work. He must take charge of the patient before delivery, attend her during that time and afterward protect her from offensive interference and provide her with such other care as may be necessary until she has recovered. My belief is that obstetric practice is now regarded as the most unsatisfactory of any in the country. I am not at all surprised for I have had an experience which bears out and confirms the statement. It is almost impossible for a physician who has a large general practice in the country to do either his patient or himself full justice if obliged to spend many hours attending an obstetric case. With the patient in a hospital, with a resident physician always present to help and to notify him if necessary, very much more time could be given his other patients and very much more satisfaction given to everyone. If the physician has carefully studied and examined his patient, has learned all that he can of the position of the child and the pelvic measurements, especially if the patient is a primipara, he can absent himself for a greater length of time.

The Diminishing Number of Physicians.

It is heard on every side that country physicians are wanted. Whole communities are without near medical attendance. How long will it be before definite steps must be taken to induce competent physicians to practice in the country? Will it ultimately become necessary for the Commissioner of Health to select our physicians? Or will industrial reform, or socialism, provide a solution of the problem? I am confident that the scarcity of physicians is due very largely, if not entirely, to the attractions of city life for professional men. The graduate is equipped to work in hospitals. He has for at least five years observed the practice and, to a considerable extent, has actually practiced with the complete outfit now demanded of all hopitals by the A. M. A. and the American College of Surgeons, including the laboratory and all of the aids to scientific investigation of disease. It is this training and equipment that is influencing men away from the beautiful countryside and from the hardships of country practice. Many young men have remarked to me that they thought all this training useless unless they should have hospital opportunities in the future. To my mind there is no better way than to meet this situation frankly and to show these men that in this State we propose to develop a sentiment favorable to their demands. The hospital idea should be pushed to the front of all means to provide further care for our rural sick and also to make further and better provision for competent physicians to practice in them.

In a paper of two years ago I wrote of "The Standardization of Rural Hospitals".* The claim was made that they should be conducted along the same lines as the best city hospitals and should be licensed by the Health Department of the State and annually inspected by the director of that department or his deputy. It was urged that each hospital should have the support of the State and also should be the health center of the community in which it is situated. It would appear that our society

* See Trans. So. Surg. Assn., 1918.

might well take a short time at each session to hear reports from hospitals of this class and to discuss hospital extension as well as to hear from existing hospitals as to their methods used in the development of the project. For this purpose it would seem that a special committee or board could deal with the subject properly.

In many States there are numerous small hospitals, generally private hospitals, which have been barely able to meet expenses. This may be the case in Virginia and if so these might easily be converted into public or open hospitals. It is often true that a private institution in a rural community encounters greater opposition than it deserves. It would seem to be a wise move for these to open their doors to all qualified practitioners who may send patients. They could then enlist the active support of the physicians and every agency in the county or district to aid in equipment and maintenance. More money will be given and more help generally will be forthcoming when it becomes known that all classes will be admitted and that the hospital is not only for the well-to-do.

It is well known to all of those who have had experience with building and maintaining hospitals that the initiative must come from the community in need. There must be a whole-hearted call from those communities that have medical, surgical and obstetrical patients in need of hospital treatment. Although I am emphasizing the necessity for better and more extended care of obstetrical patients, I do not wish to appear less in favor of medical and surgical treatment of suitable cases in the hospital. It will require a number of patients who pay for their treatment and care to support the work of the hospital and I firmly believe that there is a growth of public sentiment in this State favorable to the extension of proper scientific care of every pregnant woman and her child.

There is not time for further consideration of this subject or I would like to say something about the particular kind of hospital needed for this work and why it should be the center of all public efforts as well as a home or headquarters for the public health nurses, whose help is absolutely essential in any or all methods of reaching every family in the State.

Stoneleigh Court.

DISCUSSION

Dr. Virginius Harrison, Richmond:—Obstetrical work is one of surprises. The first surprise is that by giving the patient enough time, Nature will do all the work; we can stand, sit, and rest, but Nature will often do all the work if we give her a chance. The other surprise,—the complications of obstetrics are often sudden, severe, and unforeseen. In many cases we expect to have trouble, but as I stated a while ago, give Nature sufficient time and it will accomplish a great deal. Hemorrhages take place when we do not expect them. Women do not deliver when expected. Complications come up. In the private home we may have one trained nurse who is not clean. She cannot assist and give the anesthetic at the same time. We must either sacrifice the baby, if in danger, or let the mother lose more blood than necessary, if she is bleeding. In the hospital, internes and nurses are there to administer anesthetic and to take care of the baby, thereby saving the baby and the mother the loss of blood. If this is true in the city, where we have assistants within call, in 15 or 20 minutes, what must it be in the country? Until the people are educated, we will not obtain enough assistance. There is no surgeon in my hearing who would do the work we are expected to do with as little help. If we have the patient in the hospital we have less excuse for doing bad work. At home often we have to sacrifice the baby in order to save the mother. I do not believe in performing operations to shorten the time of the doctor.

Dr. E. P. Tompkins, Roanoke:—Dr. Stone has elaborated on the lack of hospitals in the country, and it occurs to me that it may be necessary for us to come to the same situation as it is in France. It was my privilege in the year 1913, to visit the Maternite Hospital in Paris, and I was much interested in their methods of procedure. There they have educated mid-wives; young women who come to the hospital for a two-year course of study the same as medical students, and they go through the same sterilization as physicians do, and are competent to practice obstetrics. At the time I was in this hospital, where 12,000 births take place every year; there is a large operating ward, scrupulously clean, furnished with beds for 12 patients in the delivery room. At the time of my visit there were 6 labor cases in progress. I might mention, also, another thing that the Europeans have put into practice. In Paris, for instance, the hospitals are supported by a tax on amusements. All pleasure places are under control of the Board of Charities. If you purchase a ticket to a beer garden, moving picture, theatre, etc., or any other amusement, printed on the ticket is the amount or percentage of tax which goes to the hospital. Forty million francs a year are derived from this source. In Austria they put a tax on the land. Eventually, we may come to some such arrangement here.

ABSCESS OF THE LUNGS, WITH REPORT OF CASES.*

By J. T. McKINNEY, M. D., Roanoke, Va.
Roentgenologist Lewis-Gale and Jefferson Hospitals.

The diagnosis and study of abscess of the lung by means of the X-Ray affords much valuable data and information to both the in-

*Read before the Tri-State Medical Association of the Carolinas and Virginia, at Charlotte, N. C., February 18, 1920.

ternist and surgeon, and it is from the viewpoint of the roentgenologist that this paper, with accompanying lantern slides is approached. While it is true that the majority of lung abscesses are easily recognized by the clinical history with the accompanying putrid and foul expectoration, the important thing to determine is the approximate size and number of the abscess cavities, their location, and amount of infiltration present. The progress of the development of the abscess, the determination as to whether it has ruptured into the bronchi, and the future course of the abscess cavity, can graphically be shown by the Roentgen Ray. Nor is it possible to accurately determine this by physical findings or signs, as dullness and diminished breathing over circumscribed areas are the most constant sign, and these are not always pathognomonic.

One of the most frequent causes of abscess of the lungs is due to the aspiration of infectious material from the mouth or throat during operations or following anesthetics. The three cases reported in this paper can be directly traced to this cause. One case followed administration of ether to extract a number of infected teeth, the other cases followed tonsillectomies.

The frequent reports of lung abscesses following the removal of tonsils would suggest extra care on the part of our laryngologists to use every precaution, to endeavor to prevent the squeezing out of infected plugs in the throat, when the tonsils are grasped by the forceps. Once this infected material is aspirated it becomes embedded in a bronchus setting up a pneumonic process, which gradually invades the surrounding lung structure and sets up a destructive process with final formation of a cavity.

From the type and character of the putrefactive expectoration seen in many of these cases we are led to believe that the majority of lung abscesses are due to the anaerobic bacteria.

The clinical course of lung abscesses is most interesting. In a very small percentage of cases we find the cavity completely clearing up, as in one of my cases. This is due to the breaking down and sloughing of the infected area, with a rupture into the bronchi and expectoration of the putrid material. The bacteria lose their virulence, the inflammatory process subsides, the lung expands and the cavity becomes obliterated, the infiltration being absorbed. The obliteration of the abscess cavity will not completely disappear, if fibrosis has occurred, and here the cavity becomes a permanent one. The many cases of remission of abscess are due in a large measure to an extension of the invading foci of infection, with formation of fibrosis; or the abscess cavity may secrete infective material; which may spread all over the lung causing a disseminated pneumonic process, as occurred in one of the cases reported. The remarkable recuperative powers of the lungs were never so well demonstrated as during the late war; thoracic surgery is no longer dreaded as in former times, the surgeon boldly entering the thorax with the same confidence as the abdomen. Nor was the elaborate apparatus and technique for keeping up the negative pressure of the lungs, brought out by Dr. William Myer, of New York, found to be necessary.

Many cases of abscesses of the lung follow "Flu" and pneumonia, and with the presence of the epidemic now with us, cases which show a slow and prolonged convalescence, with remission of temperature and failure of the pneumonic process to clear up, should be carefully watched clinically for either a lung abscess or empyema.

In practically all cases following aspirated particles of infective material the onset of the abscess is usually on the 10th to the 14th day. One of the symptoms encountered is hemorrhage, also a clubbing of the fingers, neither of which were noted in my cases. Cases following aspirated particles, as a rule, have more favorable chances for recovery, but if they do not show evidences of a spontaneous recovery after three months, there is little chance of their clearing up without operative procedure.

The X-Ray evidence consists of an area of pneumonic infiltration with varying degrees of density, with a cavity, as a rule circular in shape, embedded in the infiltrated lung and usually showing a fluid level. Any lobe may show involvement, but commonly the upper and lower lobes are less frequently seen. Artificial pneumothorax has been tried, but its use in the hands of the majority of observers does not seem to have demonstrated any appreciable value. The complete extirpation of the diseased part of the lung, as advocated by Lilienthal, in a number of cases appears to be the operation of choice, rather than incision and free drainage, as is more commonly done.

Lung abscesses, from the Roentgen Ray

standpoint, are to be differentiated from unresolved pneumonias, encysted or localized empyemas, primary and metastatic new growths, and some types of T. B. However, by close co-operation with the clinician and surgeon and a careful clinical history, the Roentgen diagnosis is not difficult, the X-Ray findings, in most cases, being characteristic.

Case 1.—J. D. S., physician, age 30. Tonsillectomy, November 19, 1919, under general anesthetic. Eight days afterwards was taken suddenly with severe pain in right chest, ill about a week, followed by high temperature which lasted eight days. Then felt "something give away," as he expressed it, on right side of chest, and he began to expectorate a great deal of putrid, foul pus.

Entered hospital December 13th. His blood count showed leucocytosis of 12,400, with 82% of neutrophils, 15% small lymphocytes. Urine trace of albumin; sputum showed many bacteria, staphys, streps and pneumococci.

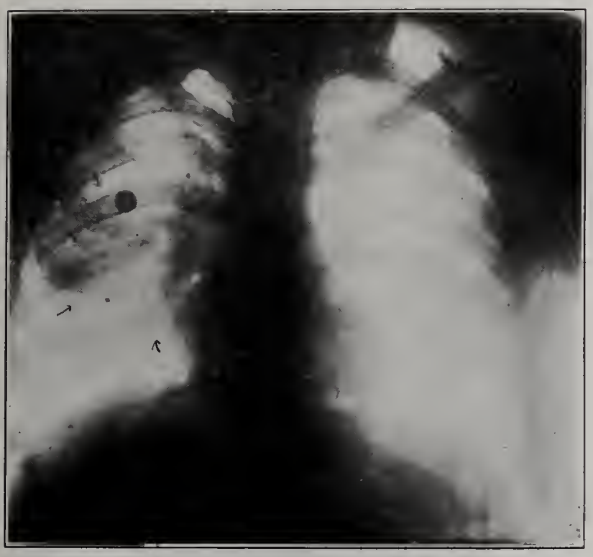

Fig. 1. Case 1. Area of increased density extending outward from hilum of right lung, with abscess cavity within this area.

Report of stereoscopic examination on December 14th was as follows:

"There is a marked increased density of pneumonic infiltration extending from the hilum of the right lung outward towards the periphery of the lung, from the lower border of the 1st rib to the upper border of the 5th rib, using anterior markings. This increased density appears to be situated practically in the mid-portion of the lung. Within the center of this area of pneumonic infiltration, there is a small area of lessened density which appears to be an abscess cavity, which has emptied itself."

Fig. 2. Case 1. Pneumonic infiltration and abscess cavity practically entirely cleared up four and half weeks later. Compare Figure 1.

The surgeon and internists decided to adopt the policy of "watchful waiting" and this patient was given symptomatic treatment and told to report for future X-Ray examination.

Upon re-examination on January 20, 1920, the X-Ray findings were reported as follows:

"The abscess cavity of the right lung, reported on a previous examination December 15, 1919, has entirely cleared up. A few small areas of pneumonic infiltration are still seen extending from the hilum out in the parenchyma of the lung, especially behind the 1st and 2nd interspaces, using anterior markings."

Patient was feeling fine, and from clinical symptoms, as well as Roentgen Ray findings, appeared entirely cured.

Case 2.—Mrs. G. B. S., age 36, entered hospital November 5, 1919. Five weeks previously had taken ether and a number of very bad teeth, with large abscesses at the roots, were removed. About 12 days after extraction of teeth, she developed what her physician thought was a pleurisy on the right side. Two attempts at aspiration did not locate any fluid. One week before entrance to hospital, she began to cough a great deal and expectorate a large amount of foul smelling material.

On admission to hospital temperature ranged around 100 to 101; pulse 112 to 120; respiration 24 to 28. Physical findings showed heart

Fig. 3. Case 2. Dense shadow of pneumonic infiltration at base of right lung, with varying degrees of density and abscess cavity.

slightly enlarged in the transverse diameter, lungs diminished expansion on right side; dullness below the 6th dorsal vertebra posteriorly, and 5th rib in the axillary line, increased fremitus, and markedly decreased whispered voice. No rales heard over this area; few scattered rales over remainder of both lungs.

Leucocytes 22,200, polys 85, large mononuclears 3, small lymphs 11. Blood culture showed streptococci to be predominating organism. On standing, sputum separated into three well defined layers.

Roentgen Ray examination November 6, 1919, was reported as follows:

"An extremely dense shadow, of pneumonic infiltration at base of the right lung. This shadow is made up of varying degrees of density, and extends to the outer wall of the chest, up as high as the lower border of the 5th rib anteriorly, and the lower border of the 7th rib posteriorly. This area is more or less irregular in outline, and has the appearance of an abscess of the lung, which looks as if it might have ruptured into the bronchus."

Artificial pneumothorax was given on November 16th, very little air being injected.

Rayed again on November 17th, 1919, with report of findings as follows:

"Very little air appears to have entered the pleural cavity, possibly due to pleural adhesions, and it is doubtful if enough compression can be obtained by artificial pneumothorax to overcome the pleural adhesions and empty the abscess cavity."

Operated on November 18th, resection of the 8th rib post axillary line, pleural cavity opened, considerable amount of foul pus evacuated. Abscess in lung located and opened, large amount of fluid and pus evacuated. Large rubber tube put into abscess cavity. Patient did not do well, and died November 26, 1919.

Case 3.—M. F., female, age 19. Past history negative. Had tonsillectomy under ether three months ago. Ten days after operation, developed high fever, chills, cough and fetid expectoration. In bed three weeks, running variable temperature, and having frequent attacks of coughing, which would last over an hour, expectorating exceedingly thick, foul, purulent sputum.

Cough still persisted and though up and walking around, patient did not feel well. Attending physician suspected lung abscess, and

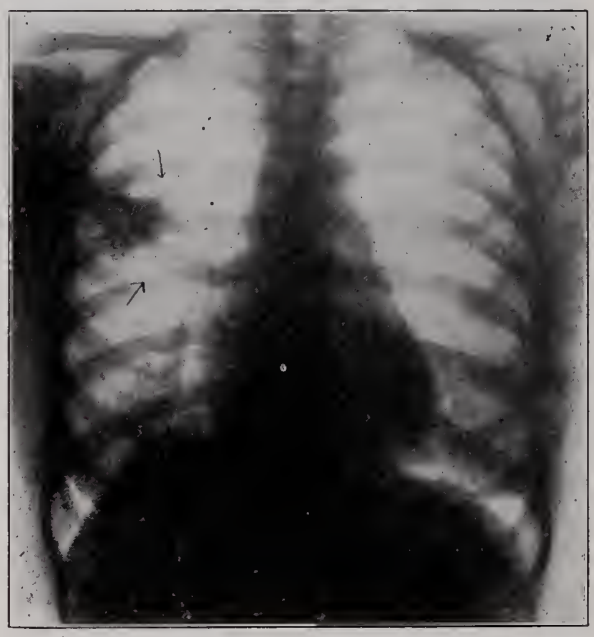

Fig. 4. Case 3. Area of pneumonic infiltration, with abscess of right lung. Examination made three months after tonsillectomy.

she was referred for Roentgen Ray examination.

Report of X-Ray examination made three months after tonsillectomy was as follows:

"Stereoscopic examination of Miss M. F.'s chest shows a moderately large dense area of pneumonic infiltration, extending out from the hilum of the right lung to the periphery, just back of the 2nd and 3rd interspaces, and situ-

ated near the anterior portion of the lung. Several small areas of varying degrees of density are seen within this area of pneumonic infiltration, giving the Roentgen Ray appearance of an abscess of the lung. Both lungs show no evidence of pathology other than the involvement noted above in the right lung."

Patient gives no history of a previous attack of "Flu," pneumonia, or T. B., and has been requested to report for future examinations, in order to study the course of the abscess cavity.

519 *MacBain Building.*

WHAT ADVICE SHALL WE GIVE REGARDING PREGNANCY IN PATIENTS WITH MAMMARY CANCER?*

By G. T. TYLER, M. D., Greenville, S. C.

The conclusions presented in this paper I have reached independently. Later, in a search for other cases and views, I found that they had been expressed in different form several years ago—even as far back as 1878. My excuse for offering the subject, however, is that I have rediscovered something which may be the means of saving more patients from the ravages of cancer.

Fortunately, the incidence of cancer of the breast and pregnancy is rare. Still the few cases I have collected lead me to believe that many others have not been reported. Our ideas regarding pregnancy and cancer of the cervix are quite well established. Pulmonary tuberculosis and severe heart lesions have a much more unfavorable prognosis if a pregnancy supervenes. Probably the principle that pregnancy does aggravate the danger has been acquiesced in, but not radically applied when dealing with mammary cancer.

My patient, Mrs. A. H., aged 38, the mother of three children, the second a twin pregnancy, was six months pregnant at the time I first saw her. There was a lump in the left breast which she had watched for eight months. It had gradually increased to the size of a hen's egg: was beneath the nipple. There was no discharge, the skin was adherent and dimpled. The axillary glands were palpable. At operation, five days later, radical removal of breast and axillary glands was done. There was a gland 1 cm. in diameter beneath the falciform ligament. Recovery from the operation was uneventful; the patient went to term; was delivered of a normal child; but died six months after operation from visceral metastases. There was ascites, with a large nodular liver. She nursed the child until her strength failed. It is in good health at present.

Study of this case raised in my mind the question of permitting pregnancy to advance if cancer of the breast is found. In a search of the recent literature, I found several cases. E. P. Davis, in *Progressive Medicine*, 1918, reported a case of mammary cancer in a patient aged 40, who was pregnant. He was not allowed to do anything except to make local applications to the breast. After delivery by section, the cancer grew rapidly, invading the wall of the chest. The patient died soon after delivery. Mussey, (*Am. Jour. of Obstet.*, Aug., 1918) reviewed 100 cases from the Mayo Clinic where operation was performed upon women who were pregnant. Among these were two radical operations for cancer of the breast. Pregnancy was not interrupted. There is no further information regarding them. Bainbridge in an instructive contribution (*Am. Jour. of Obstet.*, Jan., 1918) reported one case of his own, and collected 15 others from the literature. In his case, pregnancy took place after recurrence had been discovered. A study of this paper will amply repay one interested in the association of these conditions. He gave also experimental evidence of the rapid development of cancer during and after pregnancy. Bloodgood, on the other hand, (personal communication) said that, owing to the scant data collected on this subject, the only advice he had was to operate for the breast condition. A surgical acquaintance has recently told me of two patients on whom he had operated for cancer of the breast. They later married, became pregnant, and died of metastases.

The conclusions I have reached are: If cancer of the breast occurs in the child-bearing period, pregnancy should not be permitted until at least three years—better five—have lapsed after operation, and then only if there is no evidence of metastasis. If pregnancy does occur during this time, it should be terminated as soon as recognized. If mammary cancer is discovered during pregnancy, not only should operation be done, but the pregnancy should be terminated, or the patient should bear the responsibility of non-interference.

*Read before the Tri-State Medical Association of the Carolinas and Virginia, at Charlotte, N. C., February, 1920.

FLUID INJECTIONS BY THE INTRAPERITONEAL ROUTE.*

By JOHN S. WEITZEL, M. D., Richmond, Virginia.

Blackfan in 1917, at the suggestion of Howland, began the use of the injection of normal saline solution into the peritoneal cavity, and by its use demonstrated conclusively that this route was by far the most satisfactory therapeutic measure in the treatment of the severe nutritional disorders of infants, especially when, after continued vomiting and diarrhea, marked loss of body fluids had resulted.

This treatment was first used as a routine measure on the service of Professor Garrod at St. Bartholomew's Hospital, London. Previous to this no reference has been found in the literature.

The technic is as follows: The patient lies in the recumbent position with the motion of its arms and legs restricted. The most favorable site for the introduction of the needle is through the linea alba about one-half to one inch below the umbilicus. The skin is prepared after the usual surgical method with iodine and alcohol. The needle used is preferably an 18 gauge Quincke needle which prevents any danger of the sharp point puncturing the intestine; however, a regular 18 gauge needle without the obturator may be used as it has been demonstrated conclusively that no injury has ever occurred to the underlying intestine, providing the usual precautions are followed. Numerous men use the site of injection at a point external to the outer border of the right rectus muscle, half way between the costal margin and the anterior superior spine of the ileum. Personally, I prefer the first mentioned site as I have seen marked inflammatory reaction set up around the site of injection when the latter point is selected. This reaction, I feel, is due to penetration of muscle substance which has a greater blood supply, hematomas and inflammatory processes sometimes resulting. These I have never observed in selecting the first mentioned site. The skin and subcutaneous tissues are picked up between the thumb and index finger and the needle pointing upward is inserted at an oblique angle through these structures; the direction is then changed to a vertical angle and the peritoneum punctured. Before the needle is inserted, the warm saline solution is prepared in an ordinary gravity apparatus and the coupler on the tubing is attached to the inserted needle, allowing the fluid to flow gently into the peritoneal cavity.

No definite amount need be measured for a particular aged child, as it depends more upon the amount of dehydration than upon the size of the child; however, a very small child ordinarily takes from 75 to 125 c.c. without any unfavorable results. About twenty minutes is usually taken to allow the fluid to enter the peritoneal cavity, and from 75 to 250 c.c. are usually injected, depending, as I have said, upon the age of the child, the amount of dehydration, and the amount of distention which the fluid causes.

The indications for the intraperitoneal injection of fluid are those diseases of infants which cause marked dehydration, in which case fluid must be gotten into the circulation promptly; for example, acute ileocolitis, acute intestinal intoxication, marasmus, feeding cases of a difficult type, gastroenteritis, rumination, pyelitis, acute enteritis and gastroenteritis with acidosis.

McLean and Lang, at Babies' Hospital, N. Y., in a series of ninety-nine infants receiving intraperitoneal injections, make the following statement: "We have not had any bad results from the intraperitoneal injections although we have noted discomfort in a few cases." They have made a careful study of the effect of intraperitoneal injections on the pulse, respiration and temperature with the following deductions: In ninety-nine infants, there was a rise in pulse rate in 52.7%, fall in pulse rate 10.1%, no change 37.7%; higher respiratory rate 45.9%, lower respiratory rate 2.3%, no change 51.7%; elevation of temperature 31.6%, fall of temperature 21%, no change 47.4%. Regarding weight, 35% gained, 40% lost, and 25% showed no change. Comparing the effect of other avenues of injection with the intrapertoneal route on the pulse, respiration, temperature and weight, they have observed that the pulse is more frequently affected in sinus and intraperitoneal injections than after hypodermoclyses. The respiratory rate is more frequently affected in peritoneal injections than in sinus injections and hypodermoclyses. This, of course, would be quite naturally due to the mechanical factor present. The temperature is more frequently elevated in sinus injections than in intraperitoneal injections or

* Read at a meeting of the Richmond Academy of Medicine and Surgery, September 28, 1920.

hypodermoclyses. Weight gains are more frequently noted following intraperitoneal injections than after sinus injections or clysis.

The number of injections varies, of course, depending entirely upon the degree of dehydration and intoxication. Some infants require an injection as often as every eight hours; however, the average requirement is once in twenty-four hours until the toxemia is overcome—a loss of that waxy, doughy appearance and a return of the tissues to their normal tone, with the profound stupor markedly improved.

In the number of injections done myself, I have only seen one unfavorable result, which was in a child three months old weighing 8 lbs. Eight hours after the injection, marked abdominal distention and tenderness were noted, with a temperature of 101 degrees F. A diagnosis of peritoneal irritation with temporary ileus was made. The condition entirely disappeared in 24 hours, and the peritoneal injection was repeated in 24 hours without any unfavorable symptoms following.

On performing an autopsy upon one of the infants, receiving three of these intraperitoneal injections, two days following the last injection, I noted: The abdomen was moderately distended; at a point from one-half to one inch below the umbilicus three small puncture wounds were present. On opening the abdominal cavity the anterior abdominal wall showed no abrasions of the peritoneal surface and no extravasation of blood, nor evidence of any inflammatory reaction around the puncture wounds. About 10 c.c. of clear yellow fluid was free in the abdominal cavity. The intestines showed no evidence of adhesions or abrasions.

A glass tube has been devised for puncturing the peritoneal cavity, which is used from six to eight hours after a peritoneal injection. The free fluid is drawn off by suction and a small quantity of straw-colored fluid is usually obtained. The smears from this fluid show a few polymorphonuclear cells but no organisms. The cultures were sterile.

The time required for the complete absorption of an average peritoneal injection of normal saline is about six hours, and Schloss, who has conducted very extensive investigations in this subject, shows the fluid to be absorbed more promptly by an intravenous injection of 7% glucose solution one hour after the intraperitoneal injection. This, he has proven, hastens the absorption of the saline into the blood stream.

Numerous other solutions have been administered intraperitoneally for experimental purposes; for example, McLean and Lang, in their work during the summer of 1918, used the following solutions: Six per cent. dextrose in normal saline, 6% dextrose in distilled water, normal sodium chloride, 2% sodium bicarbonate with 2% dextrose solution, 1% sodium bicarbonate with 1% dextrose solution. The most satisfactory results, up to the present time, however, are obtained by using only physiological salt solution in the peritoneal cavity, for it gives less irritation and discomfort than any of the other combinations mentioned. I have seen one case given an intraperitoneal injection of 2% sodium bicarbonate solution with marked irritation and discomfort resulting, and have never used anything but normal salt solution.

Having, therefore, this avenue at our disposal, and having had extensive observations carried out by such men as Blackfan, Maxy, Schloss, McLean, Lang and others, we are brought into possession of a means whereby the marked dehydration and toxemia associated with intestinal intoxication and marasmus in particular can be combated promptly and with no deleterious results.

Fluid, therefore, can be administered by the intraperitoneal route with more prompt results than by any other avenue, affording us a weapon that fills a long felt want in the treatment of diseases in infants associated with marked dehydration and toxemia.

Professional Building.

Discussion.

Dr. W. L. Peple reported a case of acidosis seen in consultation. The patient, apparently desperately ill, was given an intraperitoneal injection of 200 c.c. of a two per cent. soda and two per cent. glucose solution. Consciousness was regained in a half-hour, and the patient went on to recovery. Dr. Peple believes that the child would, otherwise, have died. It was difficult to inject the solution into a vein, because of collapse of those channels; into the rectum, because of straining; into the stomach, because of vomiting; or into the longitudinal sinus, because it was closed. It was emphasized that the apparatus used should be thoroughly sterilized, and that the utmost care should be taken because of the exceeding liability to injury.

Dr. Weitzel, closing the discussion, said there must be definite indications for using the injections. He reported a case in point. The patient was toxic and in a stupor. There were frequent watery stools, and for five days the temperature hovered around 103° F. Following the injection, the temperature dropped to normal and remained there.

ETIOLOGY AND TREATMENT OF ASTHMA.

By TURNER S. SHELTON, M. D., Richmond, Va.

Etiology. There are two types of asthma, (1) typical bronchial asthma in which there is some foreign protein acting either locally or centrally as an irritant to the smooth muscular tissues of the bronchi, causing a spasm of the bronchial muscles with a typical attack of asthma, which usually lasts only a short time and clears up completely between attacks; and (2) asthmatic bronchitis, which is associated with colds, chronic bronchitis, catarrhal conditions of the nose and throat and, sometimes, with infection of the teeth, tonsils and sinuses. This type is usually bacterial in origin, is more or less constant and has a tendency to get worse.

In some cases both bacteria and foreign proteins are the exciting factors, and in others it is impossible to find just what the cause is. The younger the patient the more likely it is to be caused by food or animal epidermal proteins or by pollen. Four-fifths of the patients that begin asthma in infancy, and two-thirds that begin in childhood are sensitive to protein or pollen; and very few that begin after fifty are so sensitive, these usually being bacterial in origin.

Of over six hundred cases studied by Dr. I. Chandler Walker, of Boston, 48% gave a positive skin test to some type of protein and 52% were not sensitive. Sixteen per cent of the total number were sensitive to animal epidermal protein, most of them to horse-hair or dandruff, and others to cat-hair, feathers, cattle-hair, dog-hair and wool, horse-hair being by far the most common, and dog-hair, the least common, causes. Twelve per cent of the total number were sensitive to food protein; most of them to cereal grains, such as wheat, corn and rice; others to egg, fish, milk and potatoes; a few to beef, lamb, pork and fruits. Ten per cent were sensitive to bacterial proteins, staphylococcus pyogenes aureus being the most frequent and streptococcus haemolyticus being next. Others were staphylococcus pyogenes albus, streptococcus viridans and micrococcus catarrhalis. In 11% of the total number, pollen protein was proven to be the cause of asthma, most of these being timothy, red top, ragweed and goldenrod: others were orchard grass, daisy, willow, birch, maple and pine. Bacteria may cause asthma either by producing a chronic bronchitis locally, or by infection of other parts of the body, throwing off bacterial protein and producing irritation centrally.

Contributory causes of asthma are cold air, dampness, changeable weather, strong winds, going from a hot to a cold room, menstruation, indigestion, distention of the gastro-intestinal tract, nervousness, tire, excitement, irritating odors and gases, colds and bronchitis.

Treatment consists of climatic, drug, specific protein and vaccine. Of these, the specific protein and vaccine are by far the most important.

Climatic. Change of residence from one climate to another will relieve some cases that are sensitive to pollen, by going to a location where that particular pollen does not grow.

Drugs. In the asthmatic bronchitis type, potassium iodide is of considerable value, in that it thins the bronchial secretion enabling the otherwise thick tenacious sputum to be much more easily discharged, affording considerable relief, but it has no effect on the sensitive type of asthma.

The most reliable and quickest-acting drug during an attack is adrenalin chlorid in 1-1000 solution given hypodermically in ten to fifteen minim doses, repeating as often as necessary. Morphine, atropine and belladonna are very beneficial and probably have in the past been used more than any other drugs. Benzyl benzoate, 20% solution, in 20 minim doses, gives considerable relief in most cases.

Specific Food-Protein Treatment. — The patient should absolutely not touch the protein to which he is sensitive, except in a few cases where the protein is destroyed by thorough cooking. To determine the protein sensitivity, the cutaneous test is most extensively used and the most reliable. It is made by making several small cuts on the flexor surface of the forearm (not deep enough to draw blood) about an eighth of an inch long; on each cut put a protein and to it add a drop of tenth-normal sodium-hydroxide solution, leaving one without any protein as a control, as some skins are so sensitive that they will react to the sodium-hydroxide solution. In half an hour wash and note the reaction. A positive reaction consists of a raised white elevation or urticarial wheal surrounding the cut.

* Read at a meeting of the Richmond Academy of Medicine and Surgery, September 28, 1920.

Bronchial asthma, due to animal epidermal and pollen protein, is very successfully treated by subcutaneous injections of the offending protein, but before the treatment can be given, skin tests of varying dilutions of the particular protein must be made to find out the initial therapeutic dose which is .1 c.c. of the strongest solution that fails to give a positive reaction, increasing each dose until 1c.c. is reached, then starting on the next stronger solution in the same manner and continuing until one gets a negative skin reaction.

Bacterial proteins:—Patients who are sensitive to bacterial proteins should be treated with vaccine of the particular organism to which they are sensitive, in the same manner as animal and pollen proteins.

The specific protein treatment outlined above should relieve about 80% of sensitive bronchial asthmas, and another 10% should be relieved with the vaccines.

For non-sensitive or asthmatic bronchitis cases, autogenous or mixed stock vaccine is the best treatment, and good results follow in at least two-thirds of the cases.

3018 *Semmes Avenue.*

Discussion.

Dr. J. M. Hutcheson does not believe that in practice, the diagnosis of asthmatic bronchitis from true asthma is easy. The proper study of asthma cases for protein sensitization requires a considerable outlay of expense and time, as the possible proteins used may number as high as 150. All cases cannot be helped, but, occasionally, gratifying results are accomplished. In the non-sensitive and in many sensitive cases vaccines are of tremendous help and there is no more satisfactory treatment except where the causative protein is determined and readily eliminated.

He does not believe that benzyl benzoate is nearly so valuable a palliative as atropine. No treatment can be regarded as curative. Most so-called cured cases relapse. It is a question as to whether prolonged abstinence from the causative protein produces immunization.

Dr. Hutcheson is of the opinion that in the future a number of cases now found to be non-sensitive to proteins will be shown to be sensitive to certain bacterial proteins. It is also probable that many cases of eczema, urticaria and angio-neurotic edema are the result of protein sensitization.

Dr. W. H. Higgins reported a case of rather uncommon type so far as age is concerned. The patient, a man, aged 50 years, when seen a year ago, had had asthma almost continuously for twenty years. Dr. Higgins started treatment upon the assumption that the cause was bacterial, and gave autogenous vaccines over a long period, but without result. Stock vaccines were likewise unsuccessful. The patient was then found to be exceedingly sensitized to wheat, and withdrawal of this article of food caused abrupt cessation of the asthma. He remained free for eight months when the attacks returned, showing that withdrawal of the sensitizing protein is not always sufficient.

Dr. Higgins agrees with Dr. Hutcheson regarding benzyl benzoate. He has given it in doses as large as one dram every four hours without benefit. Vaccines are indicated in a large number of these cases, and should be given in conjunction with protein injections.

Dr. Garnett Nelson warned against dwelling too much on general bacterial, or protein infection. It was contended at one time that bronchial asthma occurred only in the presence of pulmonary tuberculosis. This idea has been abandoned to a great extent, though some still hold that the reason asthma occurs is because of a chronic condition somewhere. There is no doubt that in a large number of patients whose sensitization returns or who are sensitized by something else, there is syphilis present. No asthmatic case should be studied without taking these into account or some mechanical disturbance whose existence may be in the nose, ears, eyes or elsewhere. For example, a negro, aged 47, had been treated by every known method over a period of several years, but unsuccessfully. A careful study of the chest showed mediastinitis with aortic dilatation. Wassermann was 4 plus. Treatment directed to these conditions, without regard to the asthma, resulted in recovery.

Dr. Shelton, closing the discussion, said he was wondering if the asthma in the case cited by Dr. Nelson were not a symptom, and not a typical instance of the disease.

The Truth About Medicine

During September the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-Official Remedies:

United Synthetic Chemical Corporation:
20 per cent. aromatized suspension made from benzyl benzoate (Van Dyk and Co.).

The Heyden Chemical Works:
Proganol.

Change of Agencies.

Arheol and Riodine. The Council has directed that the description of Arheol (New and Non-official Remedies, 1920, p. 251) and Riodine (Jour. A. M. A., Aug. 14, 1920, p. 477) be revised to state that these products are manufactured by P. Astier Laboratories, Paris and New York, and are distributed by Geo. J. Wallau, Inc., New York.

Benzyl Alcohol (Van Dyk and Co.):

Benzyl Benzoate (Van Dyk and Co.): The Council has directed that the description of benzyl alcohol—Van Dyk and Co., (New and Non-official Remedies, 1920, p. 28), and benzyl benzoate—Van Dyk and Co., (New and Non-official Remedies, 1920, p. 50), be revised to indicate that the United Synthetic Chemical Corporation is the distributor of these products.

Official Articles Not Within the Scope of New and Nonofficial Remedies.

Capsules Folia-Digitalis (Upsher Smith):

Tincture of Digitalis (Upsher Smith): These products are sold by Upsher Smith, St. Paul, Minn. The Council finds that they have the status of official articles and are, therefore, not within the scope of New and Non-official Remedies.

NEW AND NONOFFICIAL REMEDIES.

Sodium Arsphenamine, — Sodium Arsenphenolamine.—The sodium salt of 3-diamino—4-dihydroxy—1-arsenobenzene with a stabilizing medium. The arsenic content of three parts of sodium arsphenamine is equivalent to two parts of arsphenamine. Sodium arsphenamine has the same actions and uses as those of arsphenamine; its advantage over arsphenamine is that it does not require addition of alkali before use. To prepare the solution the sodium arsphenamine is added to the required amount of sterile water and dissolved by gentle agitation.

Sodium Diarsenol—A brand of sodium arsphenamine. Sodium diarsenol is marketed in ampules containing 0.15 Gm., 0.3 Gm., 0.45 Gm., 0.6 Gm., 0.75 Gm., and 0.9 Gm., respectively. Diarsenol Laboratories, Inc., Buffalo, N. Y.

Corpus Luteum Tablets-Armour 5 grain.—Each tablet contains 5 grains of desiccated corpus luteum-Armour (see New and Nonofficial Remedies, 1920, p. 203) (Jour. A. M. A., Sept. 18, 1920, p. 815).

PROPAGANDA FOR REFORM.

More misbranded nostrums and drug products.—The following products have been the subject of prosecution under the federal Food and Drugs Act: Beecham's Pills were held misbranded because the curative claims made for them were false and fraudulent, and because the pills were not made in England as claimed. Pike's Liver, Kidney and Stomach Remedy, because the therapeutic claims were false and fraudulent. Ergot Apiol Compound (Evans Drug Co.), because the capsules did not contain the claimed amounts of drug and because they were an imitation. Prescription 1000, sold in two forms, a copaiba preparation for internal use and a dilute potassium permanganate solution for external use, was sold under false and fraudulent therapeutic claims. Rival Herb Tablets were tablets falsely claimed to be chocolate coated and sold under false and fraudulent therapeutic claims. Wilson's Solution Anti-Flu consisted essentially of oil of eucalyptus, methyl salicylate and thymol or oil of thyme, and was falsely claimed to be effective as a remedy for influenza, colds and grippe. Castor Oil Capsules (Evans Drug Co.), did not contain the amount of drug claimed (Jour. A. M. A., Sept. 4, 1920, p. 690).

Prevention of Goiter.—The latest report on the prevention of goiter by administration of sodium iodid by Marine and Kimball—an investigation carried out under a grant from the Therapeutic Research Committee of the Council on Pharmacy and Chemistry—indicates a striking difference between those girls not taking and those taking iodin. The difference is manifested both in the prevention of enlargement and in a decrease in the size of existing enlargements. Of 2,190 pupils taking 2 gm. of sodium iodid twice yearly, five have shown enlargement of the thyroid, while of 2,305 pupils not taking the prophylatic, 495 have shown enlargement of the thyroid. Of 1,182 pupils with thyroid enlargement at the first examination who took the prophylactic, 773 thyroids decreased in size, while of 1,048 pupils with thyroid enlargement at the first examination who did not take the prophylactic, 145 thyroids decreased in size (Jour. A. M. A., Sept. 4, 1920, p. 674).

Using Unfit Ether.—In the case of Moehlenbrook versus Parke, Davis and Company et al, the Supreme Court of Minnesota denied the surgeons who had administered the ether a new trial, after a verdict had been entered against both the manufacturer and the surgeons. The Supreme Court holds that for the death which resulted from the use of the unfit ether both the manufacturer and the surgeons were responsible. The surgeons were held to be negligent in administering to a patient ether that was unfit for use and in their care after the ether was administered. (Jour. A. M. A., Sept. 11, 1920, p. 763).

Lyko.—This is an alcoholic tonic which has been widely advertised in the newspapers. It is put out by the Lyko Medicine Co., Kansas City, Mo. Lyko is claimed to stimulate the appetite, tone up the digestive organs and to have laxative qualities. It is said to contain caffein, kola, phenolphthalein and cascara sagrada. The advertising does not discuss the most powerful ingredient, alcohol, although the label declares the presence of 23 per cent. of this drug. As a result of an exhaustive examination, the A. M. A. Laboratory concludes that Lyko is essentially a sweetened solution containing about 22.2 per cent of alcohol together with insignificant amounts of caffein, cascara extractives and phenolphthalein. There was no evidence to show that the product is sufficiently medicated to prevent its being used as a beverage (Jour. A. M. A., Sept. 11, 1920, p. 757).

Nature's Creation.—This is one of the fake consumption cures. It was originally put on the market as an absolute cure for syphilis. When analyzed in the A. M. A. Laboratory it was found to be essentially a solution of potassium iodid in a weakly alcoholic medium containing vegetable extractives and flavoring matter, and small quantities of inorganic salts (Jour. A. M. A., Sept. 11, 1920, p. 758).

Iodex, A Misbranded Iodin Ointment.—(1) Claim: 5 per cent. iodin. Finding: iodin content only about 3 per cent. (2) Claim: free iodin. Finding: no free iodin. (3) Claim: absorbed through the skin, iodin can be found in urine 30 minutes after inunction. Finding: the assertion that iodin can be found in the urine after Iodex has been rubbed on the skin has been experimentally disproved. The preceding is taken from a poster of the A. M. A. Chemical Laboratory at the A. M. A. New Orleans meeting (Jour. A. M. A., Sept. 18, 1920, p. 830).

Diabetic Foods.—A report from the Connecticut Agricultural Experiment Station on diabetic foods includes not only the content of carbohydrate in these products but also that of protein and fat in view of the recognized necessity of taking into account of all the nutrients in any proper formulation of regimen for the diabetic patient. There is no satisfactory definition of what a diabetic food is, nor is there any universal diabetic food. The value of accurate information regarding the make-up of such products as may find special application in the dietotherapy, such as given in the Connecticut report, lies in the fact that it enables clinicians and the patient to proceed intelligently in the direction of diet planning with a view to tolerance of all the nutrients. Of particular interest in the report are the analyses of bran, which is being widely used at present to give bulk to the food residues in the alimentary canal. It ap-

pears that common, unwashed bran frequently contains no more than half as much starch as some of the advertised brands of "health" bran (Jour. A. M. A., Sept. 18, 1920, p. 818).

Calcidin Tablets-Abbott.—Calcidin is claimed to be a mixture of iodin, lime and starch. In contact with water, the iodin and lime react to form calcium iodid and calcium iodate. By the acid of the gastric juice, the calcium iodid and calcium iodate are decomposed with liberation of free iodin. The administration of calcidin tablets amounts to giving free (elementary) iodin. The effects produced by the administration of free iodin appear not to differ from those produced by the administration of iodids, and, therefore, calcidin has no advantage over the iodids, such as sodium iodid (Jour. A. M. A. Sept. 25, 1920, p. 892).

Some Misbranded Venereal Nostrums.—The following preparations have been the subject of prosecution by the federal authorities under the Food and Drugs Act on the ground that the therapeutic claims which were made for them were false and fraudulent: Injection Cadet (E. Fougera & Co., New York), a dilute watery solution of copper sulphate and unidentified plant material. Knoxit Injection (Beggs Manufacturing Co., Chicago), a solution of zinc acetate with alkaloids of hydrastis, in glycerin and water. Knoxit Liquid, a solution of zinc acetate with alkaloids of hydrastis, in glycerin and water. Knoxit Globules, essentially a mixture of volatile and fixed oils and oleoresins, including copaiba balsam, cinnamon and cassia. Grimault's Injection (E. Fougera & Co., New York), a weak watery solution of copper sulphate and plant extractives, probably matico. Halz Injection (Edw. Price Chemical Co., Kansas City, Mo.), consisting essentially of zinc sulphate, boric acid, glycerin, traces of alum and formaldehyd and water. Tablets which seem to go with the product consisted essentially of calcium and magnesium carbonates, copaiba, a laxative plant drug, plant extractives, a small amount of an unidentified alkaloid, sugar and starch. Noxit (Frederick F. Ingram Co., Detroit), consisting essentially of opium, berberine, a zinc salt, glycerin, alcohol and water. Crossmann Mixture (Wright's Indian Vegetable Pill Co., New York City), essentially an alcoholic solution of volatile oils, including balsam copaiba and cubebs. Santal-Pearls (S. Pfeiffer Mfg. Co., St. Louis, Mo.), consisting essentially of a cinnamon-flavored mixture of santal oil and copaiba. Cu-Co-Ba-Tarrant (Tarrant Co., New York City), consisting essentially of a mixture of extract of cubebs and copaiba with magnesium oxid. Hygienic and Preservative Brou's Injection (E. Fougera & Co.), consisting essentially of acetates and sulphates of zinc and lead, morphin, water and a very small amount of alcohol (Jour. A. M. A., Sept. 25, 1920, p. 891).

Public Health

Plans For Research Work.

The State Corporation Commission granted, in the present year, a charter for an incorporation which promises ultimately to do research work in tuberculosis in Virginia. The style of the corporation is "Tuberculosis Foundation of Virginia, Incorporated," and since it is modeled along the lines of the Trudeau Foundation of New York State, it should be of interest to members of the profession. This fact is responsible for the following explanation of the Foundation and its aims.

Affairs of the Foundation are handled by a board of trustees, five in number, under the chairmanship of C. Francis Cocke, of Roanoke, Va. One of the immediate purposes of the corporation is to provide funds for the sanatorium care of indigent consumptives, patients whose money gives out before they complete their course of treatment to that point at which they are enabled to return to work, or before they are returned to that degree of health their condition permits.

The articles of incorporation provide also that the Foundation may undertake research work looking to the eradication, cure and treatment of tuberculosis in Virginia, an aim which gives potentially a great field to work it might do.

One of the features of the plan announced by the incorporators is the permanence of the Foundation. All money received by the Foundation is to be invested, and only the interest will be available for the purposes named in the charter. The principle, once invested, is to be held in perpetuity. It is intended, by this provision, to insure the growth of the Foundation and to guarantee, as nearly as possible, that its power of service will be steadily increased with the passing years.

This statement of purposes has found sympathetic response from those interested in public health work in the State, to whose attention it has been brought.

Trustees of the Foundation point out that the Foundation fits into the campaign for better health in Virginia without conflict so far as any existing health agencies are concerned. Its purpose is to work always in co-operation with existing health agencies and its charter provisions make clear that the work of the Foundation is intended to supplement the activities of existing organizations devoted to anti-tuberculosis efforts.

Although chartered since the first of the year—the organization meeting was held in late March of the present year—the Foundation has already been made the beneficiary in several bequests, notice of which has been re-

ceived and has also received a gratifying number of cash donations.

The trustees are personally interested in the fight against tuberculosis and are giving a good deal of time to establishing the Foundation on a solid basis. They serve without pay and all expenses of the corporation have been paid so far by gifts from the trustees themselves. The treasurer of the Foundation is Mr. A. Lambert Martin, business manager of Catawba Sanatorium, Catawba Sanatorium, Va.

General Hospitals and Tuberculosis.

It should be noted—in connection with the reference in this department last month to tuberculosis wards in general hospitals—that a number of general hospitals in the State have already provided wards for tuberculosis cases. In two cities general hospitals have tuberculosis wards, and in one at least special provision is made for taking surgical cases developing among tuberculosis patients.

Since the article appearing last month was written, a visit has been made to the tuberculosis ward of Bellevue Hospital, in New York City, which is interesting because in line with what was urged in this department of the *Virginia Medical Monthly*. It is also worthy of note that in Massachusetts a large general hospital has definitely adopted a policy of segregation for its cases, establishing wards for each of a number of diseases. This would seem to be an ideal arrangement, and one that would develop naturally from an initial move looking to the reception and treatment of tuberculosis cases in general hospitals.

The idea has in it much to commend itself to the practitioner as well as to the patient, lending itself so readily, as it does, to the better study of each disease, as well as to the specialized treatment of each disease following segregation of patients.

Christmas Seal Sales.

Dr. Roy K. Flannagan, executive secretary of the Virginia Tuberculosis Association, made an earlier start this year than ever before in the campaign for Christmas sale of anti-tuberculosis seals. These seals have been sold in former years for the National and State Tuberculosis Associations in co-operation with the Red Cross. This year, the seals are being handled by the tuberculosis associations alone. Through this source funds for the state association are raised, and its success is largely dependent upon the success of the seal sale campaign. Doctor Flannagan has had gratifying success in placing supplies of seals throughout the state, but if there are communities in which arrangements have not been made, he would like for local physicians or others interested to communicate with him.

B. L. Taliaferro.

The Bacteriological Laboratory of the State Board of Health

September 30th completed its first fiscal year under its present managment. The comparative table given below will show how rapidly the work has grown in both scope and numbers.

	Oct. 1, 1918 to Sept. 30, 1919	Oct. 1, 1919 to Sept. 30, 1920
Tuberculosis	1169	1320
Diphtheria	624	1591
Typhoid		
Widal	982	825
Blood Culture	0	31
Malaria	113	337
Gonorrhea	0	537*
Wassermann	2323	9308
Rabies	0	82
Miscellaneous	109	55
Intestinal Parasites	1812	2239
Total Diagnostic	7132	16,325
Water		
Bacteriological	1158	1800
Chemical	14	36
Total Examinations	8304	18,161

*Previously included with miscellaneous.

Through the courtesy of Dr. H. S. Thatcher, Professor of Pathology of the Medical College of Virginia, free examinations will now be made of tissue from all patients unable to pay for such an examination. A statement to this effect must accompany each specimen.

Aubrey H. Straus.
Bacteriologist, State Laboratory.

Analyses, Selections, Etc.

The Clinical Application of the Carrel-Dakin Method to Cases of Acute Appendicitis Requiring Drainage.

Elbert T. Rulison, Sacramento, Cal., states

that from a review of 263 cases of appendicitis treated at the Presbyterian Hospital during the years 1915-18, we find that under methods of simple drainage there was a failure in 38% to preserve in a satisfactory manner the important tissues of the abdominal wall. These tissues usually free at the time of operation become extensively contaminated during an appendectomy with drainage of a peritoneal abscess. It was found in the cases reviewed that the average period of suppuration was 15.4 days and average hospital stay 28 days, with fæcal fistula in 7.5 per cent and a mortality of 9.1 per cent.

Aside from the 18 cases treated by the author which form the basis of this report, this method has been employed by others in 13 cases of appendicitis requiring drainage.

Before attempting the application of Dakin's Fluid to appendiceal infections, the following conclusions had been reached:

1. Suture material is not affected by small repeated injections.

2. Fibrous deposits occur, adhesions remain effective, healing of intestinal wounds may occur after repeated injections.

3. The use of this antiseptic must be restricted to the treatment of the drainage tracts after the period of walling off has occurred as severe pain and shock attended the introduction into the free peritoneal cavity.

4. Less slough and less foul discharge were noted in cases treated by Dakin's. Attention in the 18 cases has been directed especially to the course of the wound infection, noting the influence of this antiseptic in preserving the abdominal wall tissues and in altering the course of suppuration. The bacteriology was studied to see the feasibility of secondary suture of the wound.

Description of the Method: No essential change has been made in the operative technique. A straight drainage tract is essential; this can always be obtained through a stab wound in the loin. The drainage tube used is a modification of the double arm tube devised by Dr. Blake. Two separate tubes are used and their beveled edges are held together by an untied loop of plain catgut. One tube is fenestrated. A strip of narrow gauze packing moistened with 5% Dichloramine-T in Chloracosane is placed in the fenestrated tube. The drainage tubes must be long enough to project an inch beyond the skin.

The peritoneum in closed with continuous plain catgut and the small triangular spaces around the tubes are closed by inserting narrow strips of vaseline gauze. The wound is now sponged with Dakin's fluid and the transversalis and internal oblique loosely united with plain catgut interrupted. The aponeurosis of external oblique is closed with interrupted catgut and the skin with silkworm. The skin is now lifted and a 5 c. c. Carrel tube inserted into each angle of the wound lying along the sutured aponeurosis. A separation type of dressing is used consisting of a few vaseline strips next to the skin, a few gauze compresses and then a Carrel pad through all of which the drainage tubes extend. The Carrel tubes to the aponeurosis lie flat on the skin surface and are held in place by adhesive. Five c.c. of Dakin's fluid is injected into each Carrel tube before patient leaves the table and a similar amount every two hours night and day.

Post-Operative Care of the Wound: First dressing is done in from twelve to twenty-four hours at which time all dressings are removed and fresh ones applied and a fresh wick of 5% Dichlororamine-T is inserted into the same tube and 1 to 2 c.c. of the same solution dropped into the closed tube. Second dressing:—If within thirty-six hours, the procedure of first is repeated but, if from 48 to 60 hours, all dressings are removed and also the closed drainage tube. The fenestrated tube is shortened 1 inch and 5 c.c. Dakin's fluid warmed to 100 F. is gently injected and repeated every two hours. If there is any evidence of pain, reaction several hours a day should elapse before attempting another injection.

Subsequent dressings: It is desirable to remove drainage tubes as soon as commensurate with safety; this is usually done from the third to the fifth day by introducing a small rubber catheter through the lumen of the tube and withdrawing it, the catheter being left in the wound. The amount of Dakin's fluid used is rapidly increased to 10 c.c. and the Carrel tubes are removed as soon as the discharge becomes negligible. Sutures are removed at the end of a week. Smaller catheters may be substituted at any time when there is indication that the tract is closing down too tightly about the original instillation catheter. In most cases we have observed this precaution about the eighth or ninth day. Daily bacterial

counts have been made in all cases and while not essential they are an aid in a nicer determination of the condition of the wound. That secondary closure by suture is neither feasible nor safe has been a disappointment and while it is theoretically possible that by continued injections of Dakin's fluid the infected cavity might eventually approach nearly enough a sterile condition to permit a successful closure of the skin, the time element involved renders such attempts apparently futile. The instillation catheters are removed as soon as the wound ceased to show signs of suppuration.

Resume of the Post-Operative Wound Treatment.

The average time for removal of closed tube and replacement by smaller drain was 2.6 days.

Dakin's fluid was used on an average of nine days in the superficial wounds, the average amounts being 10 c.c. every two hours.

Average time at which Dakin's fluid was introduced into the deep drainage tract was 65 hours after operation.

Dakinization of the deep tract was discontinued at an average of 13.6 days. The average amounts used varied from 2 to 10 c.c.

5% Dichloramine-T was used at operations and during first 48 hours in 15 cases.

No measures to improve drainage necessary in any of these cases.

Average time when all dressing was stopped was 13.8 days.

The average duration of odoriferous discharge was 6 days.

In only one case was there wound infection.

Suppuration ceased and wounds were entirely free of slough in 10.9 days.

Closure of wound attempted in 5 cases with 3 successes and 2 failures, gradual closing by strapping with adhesive being the rule.

Only serious complication was a mechanical ileus due to tube pressure.

The condition of wounds on discharge was as follows: Healed two cases, healed with clean crusts two, small granulating areas flush with skin surface six, large granulating area one, with shallow sinus six. Only one had a weak wall. Average hospital stay was 24.1 days. Sixteen cases have been followed up over a period of two to six months with no symptomatic failures. Anatomical results excellent in 12 cases with two hernias.

The contrast to the cases treated by simple drainage or by daily irrigation has been sharp, the period of discharge of foul smelling pus with shreds of slough from abdominal wall or abscess cavity in all cases being greatly lessened and in some cases minimized to a striking degree. There have been no fæcal fistulae, no serious accidents have attended the use of Dakin's fluid intra-abdominally nor have the patients suffered pain reactions following injections except in two late cases. The patients have been discharged with better wounds and follow-up results indicate that the percentages of hernia will be materially decreased. In conclusion, emphasis should again be laid upon the necessity of thoroughly mastering the details as well as the principles underlying the introduction of such antiseptics as Dakin's fluid into deep infected abdominal drainage tracts.—*(Surg. Gynec. and Obstet.)*

Case of Spontaneous Hemo-Pneumothorax Following Artificial Pneumothorax.

Heise and Krause report the following case which occurred in the service of the Trudeau Sanatorium: A man, aged 21, entered the sanatorium on September 21, 1914, with hemoptysis and pain in his chest, his only symptoms, and with signs so few and indefinite that diagnosis at first was only tentative. He did well for several months, but toward the end of the winter his condition became less favorable. By March, he was continually febrile and was having more hemoptyses. Meanwhile, his signs indicated a slight stationary process, while the X-ray showed markedly progressing involvement. Signs remained equivocal until May 7, when they suddenly cropped out and showed consolidation below the 3rd rib and 5th v. s. on the left side. Between September and May frequent sputum examinations had been uniformly negative; but, on May 27 the fifty-sixth examination was positive for the first time. By this time the patient was gravely ill. On June 2 artificial pneumothorax was performed. The next day, after raising himself in bed, the patient suddenly experienced a sharp stabbing pain in his left side and soon became extremely ill. Application disclosed blood in the thorax. The patient went into collapse and died fourteen hours after the rupture of his lung.

At autopsy it was found that the pneumothorax needle had not injured the patient's lung. On the anterior surface near the caudal

tip was a tear of the pleura over a small cavity and close to a short and very thick adhesion. The entire left lung was involved with a caseating process that was cavitating at numerous places. The left thoracic cavity contained about two litres of clotted blood.—(Amer. Rev. Tuber., Vol. III, No. 12.)

Medical Education

Reconstruction.*

The necessity of a reconstruction that will at once reduce the number and improve the output of medical schools may now be taken as demonstrated. A considerable sloughing off has already occurred. It would have gone further but for the action of colleges and universities which have by affiliation obstructed nature's own effort at readjustment. Affiliation is now in the air. Medical schools that have either ceased to prosper, or that have become sensitive to the imputation of proprietary status or commercial motive, seek to secure their future or to escape their past by contracting an academic alliance. The present chapter undertakes to work out a schematic reconstruction which may suggest a feasible course for the future. It is not supposed that violent measures will at once be taken to reconstitute the situation on the basis here worked out. A solution so entirely suggested by impersonal considerations may indeed never be reached. But legislators and educators alike may be assisted by a theoretical solution to which, as specific problems arise, they may refer.

This solution deals only with the present and the near future,—a generation, at most. In the course of the next thirty years needs will develop of which we here take no account. As we cannot foretell them, we shall not endeavor to meet them. Certain it is that they will be most effectively handled if they crop up freely in an unencumbered field. It is therefore highly undesirable that superfluous schools now existing should be perpetuated in order that a subsequent generation may find a means of producing its doctors provided in advance. The cost of prolonging life through this intervening period will be worse than wasted; and an adequate provision at that moment will be embarrassed by inheritance and tradition. Let the new foundations of that distant epoch enjoy the advantage of the Johns Hopkins, starting without handicap at the level of the best knowledge of its day.

The principles upon which reconstruction would proceed have been established in the course of this report: (1) a medical school is properly a university department; it is most favorably located in a large city, where the problem of procuring clinical material, at once abundant and various, practically solves itself. Hence those universities that have been located in cities can most advantageously develop medical schools. (2) Unfortunately, however, our universities have not always been so placed. They began in many instances as colleges or something less. Here a supposed solicitude for youth suggested an out-of-the-way location; elsewhere political bargaining brought about the same result. The state universities of the south and west, most likely to enjoy sufficient incomes, are often unfortunately located: witness the University of Alabama at Tuscaloosa, of Georgia at Athens, of Mississippi at Oxford, of Missouri at Columbia, of Arkansas at Fayetteville, of Kansas at Lawrence, of South Dakota at Vermilion; and that experience has taught us nothing is proved by the recent location of the State University of Oklahoma at Norman. Some of these institutions are freed from the necessity of undertaking to teach medicine by an endowed institution better situated; in other sections the only universities fitted by their large support and their assured scientific ideals to maintain schools of medicine are handicapped by inferiority of location.

We are not thereby justified in surrendering the university principle. Experience, our own or that of Germany, proves, as we have already pointed out, that the difficulty is not insuperable. At relatively greater expense, it is still feasible to develop a medical school in such an environment: there is no magnet like reputation; nothing travels faster than the fame of a great healer; distance is an obstacle readily overcome by those who seek health. The poor as well as the rich find their way to shrines and healing springs. The faculty of medicine in these schools may even turn the defect of situation to good account; for, freed from distraction, the medical schools at Iowa City and Ann Arbor may the more readily cultivate clinical science. An alternative may indeed be

* From the Carnegie Foundation for the Advancement of Teaching, Bulletin Four, 1910.

tried in the shape of a remote department. The problem in that case is to make university control real, to impregnate the distant school with genuine university spirit. The difficulty of the task may well deter those whose resources are scanty or who are under no necessity of engaging in medical teaching. As we need many universities and but few medical schools, a long-distance connection is justified only where there is no local university qualified to assume responsibility. A third solution—division—may, if the position taken in previous chapters is sound, be disregarded in the final disposition.[1]

(3) We shall assign only one school to a single town. As a matter of fact, no American city now contains more than one well supported university,[2]—and if we find it unnecessary or impolitic to duplicate local university plants, it is still less necessary to duplicate medical schools. The needless expense, the inevitable shrinkage of the student body, the difficulty of recruiting more than one faculty, the disturbance due to competition for hospital services, argue against local duplication. It is sometimes contended that competition is stimulating: Tufts claims to have waked up Harvard; the second Little Rock school did undoubtedly move the first to spend several hundred dollars on desks and apparatus. But competition may also be demoralizing: the necessity of finding students constitutes for medical schools which ought to elevate standards the main obstacle to their elevation: witness the attitude of several institutions in Boston, New York, Philadelphia, Baltimore, and Chicago. Moreover, local competition is a stimulus far inferior to the general scientific competition to which all well equipped, well conducted, and rightly inspired university departments throughout the civilized world are parties. The English have experimented with both forms,—a single school in the large provincial towns, a dozen or more in London,—and their experience inclines them to reduce as far as possible the number of the London schools. Amalgamation has already taken place in certain American towns: the several schools of Cincinnati, of Indianapolis, and of Louisville have all recently "merged." This step is easy enough in towns where there is either no university or only one university. Where there are several, as in Chicago, Boston, and New York, the problem is more difficult. Approached in a broad spirit it may, however, prove not insoluble; co-operation may be arranged where several institutions all possess substantial resources; universities of limited means can retire without loss of prestige,—on the contrary, the respect in which they are held must be heightened by any action dictated by conscientious refusal to continue a work that they are in no position to do well.

(4) A reconstruction of medical education cannot ignore the patent fact that students tend to study medicine in their own states, certainly in their own sections. In general, therefore, arrangements ought to be made, as far as conditions heretofore mentioned permit, to provide the requisite facilities within each of the characteristic state groups. There is the added advantage that local conditions are thus heeded and that the general profession is at a variety of points penetrated by educative influences. New Orleans, for example, would cultivate tropical medicine; Pittsburgh, the occupational diseases common in its environment. In respect to output, we may once more fairly take existing conditions into account. We are not called on to provide schools enough to keep up the present ratio. As we should in any case hardly be embarrassed for almost a generation in the matter of supply, we shall do well to produce no doctors who do not represent an improvement upon the present average.

The principles above stated have been entirely disregarded in America. Medical schools have been established regardless of need, regardless of the proximity of competent universities, regardless of favoring local conditions. An expression of surprise at finding an irrelevant and superfluous school actually elicits the reply that the town, being a "gateway" or a "center," must of course harbor a "medical college." It is not always easy to distinguish "gateway" and "center": a center appears to be a town possessing, or within easy reach of, say 50,000 persons; a gateway is a town with at least two railway stations. The same place may be both,—in which event the argument is presumably irrefragable. Augusta, Georgia, Charlotte, North Carolina, and Topeka, Kansas, are "centers," and as such are logical abodes of medical instruction. Little Rock,

1 We shall omit the half-school because it may be considered to divide with the whole school the work of the first two years; it does not greatly affect the clinical output, with which this chapter is mainly concerned.

2 Chicago is almost an exception, as Northwestern University is situated at Evanston, a suburb.

St. Joseph, Memphis, Toledo, Buffalo, are "gateways." The argument, so dear to local pride, can best be refuted by being pursued to its logical conclusion. For there are still forty-eight towns in the United States with over 50,000 population each, and no medical schools: we are threatened with forty-eight new schools at once, if the contention is correct. The truth is that the fundamental, though of course not sole, consideration is the university, provided its resources are adequate; and we have fortunately enough strong universities, properly distributed, to satisfy every present need without serious sacrifice of sound principle. The German empire contains eighty-four cities whose population exceeds 50,000 each. Of its twenty-two medical schools, only eleven are to be found in them: that is, it possesses seventy-three gateways and centers without universities or medical schools. The remaining eleven schools are located in towns of less than 50,000 inhabitants, a university town of 30,000 being a fitter abode for medical study than a non-university town of half a million, in the judgment of those who have best succeeded with it.

We have calculated that the south requires for the next generation 490 new doctors annually, the rest of the country, 1500. We must then provide machinery for the training of about 2000 graduates in medicine yearly. Reckoning fatalities of all kinds at ten per cent. per annum, graduating classes of 2000 imply approximately junior classes of 2200, sophomore classes of 2440, freshman classes aggregating 2700,—something over 9000 students of medicine. Thirty medical schools, with an average enrollment of 300 and average graduation classes of less than 70, will be easily equal to the task. As many of these could double both enrollment and output without danger, a provision planned to meet present needs is equally sufficient for our growth for years to come. It will be time to devise more schools when the productive limit of those now suggested shall come in sight.

Public Health Service Leases Altamont Hotel.

The U. S. Public Health Service has leased the Altamont and Avenel Hotels, adjoining Fort Thomas, near Newport, Ky., across the river from Cincinnati. The Altamont is to be used as a general hospital for the seventh district of the Public Health Service, which comprises the States of Ohio, Indiana, and Kentucky. The Avenel, which is ten minutes' walk from the Altamont, will serve as quarters for the hospital staff.

The Altamont is beautifully located on a bluff overlooking the river. It is in good condition and can be occupied at once for non-operative cases, while certain necessary improvements are being made. An important feature of the hospital will be its bathing facilities. For some years mineral waters from springs in the vicinity have been utilized, with or without electricity, in baths for the hotel. Their therapeutic value has long been recognized. The hospital will have about 200 beds.

War Department Sells Remaining Surplus of Hospital Bandages and Absorbent Cotton.

The Surplus Property Branch, Office of the Quartermaster General of the Army, has sold to Thomson & Kelly Co., of Boston, the remaining surplus of bandages and absorbent cotton, purchased for the use of the army during the war. The sale netted the Government more than $1,000,000. The bandages alone represent a quantity sufficient to supply the hospitals and surgeons of the United States with all their needs for at least 18 months. The Boston firm was the highest of a number of bidders for these items. Included in the sale were a million dozen roller and between two and two and one-half million compressed bandages, and approximately 2,250,000 one-ounce packages of absorbent cotton.

Secretary's Announcement

Magazine Subscription Service.

Concentrating the magazine subscription business of the members of the Medical Society of Virginia in the office of the publication of the journal will mean a great convenience to our members and the small commissions allowed by the publishers will furnish additional revenue needed badly at this time. November and December are the two best months of the year for this business and physicians are requested to look over their magazines and send their renewals through this office. We can get for you any magazine published and at the regular rates.

Put on the table in your reading room the magazines which will keep your patients interested while waiting their turn—get the magazines which will bring relaxation to yourself—get the magazines which your family loves to read. On the advertising pages of this issue is a selected list of magazines which will easily satisfy all of these needs. Whatever you get—get it through the Virginia Medical Monthly.

Proceedings of Societies

MEDICAL SOCIETY OF VIRGINIA.

Report of Executive Council.

The Executive Council begs to make the following report:

Acting upon the following resolutions of the House of Delegates, at the 1919 meeting,

1. That the Society purchase the Virginia Medical Monthly at the price of $1,000.00;

2. That the journal be published monthly by the Society and sent free to each member; and,

3. That the Society employ a full-time man to act as Secretary-Treasurer of the State Society and Manager of the Journal and an assistant Manager of the Journal;

The Executive Council appointed Drs. B. R. Tucker, E. L. Kendig, and A. G. Brown, Jr., to carry out the provisions above referred to. Accordingly, at a subsequent date, this committee reported that they had secured the services of G. H. Winfrey as full-time Secretary-Treasurer and Business Manager and Miss Agnes Edwards as Assistant Business Manager. The Executive Council confirmed these appointments and these officers have been engaged during the year in the duties of the business of the Society at the offices, 104½ West Grace Street, Richmond, Virginia.

The duties of supervising and directing the work of the office have devolved upon the Publication Committee, as this committee, consisting of members of the Executive Council, except in the case of Dr. A. L. Gray, was called together more or less frequently to consider questions connected with the publication of the monthly journal.

The Executive Council had only one meeting during the year, and that related to the selection of time of meeting and the choice of subject and leaders of the symposium for the 1920 meeting, and some detail matters connected with the purchase of paper for the journal.

Respectfully submitted,

ALEX. G. BROWN, JR.,
Clerk.

Proceedings of the House of Delegates.

WEDNESDAY, OCTOBER, 27TH, 1920.

President, Dr. Irving, presiding. Roll call and quorum found present.

The reports of the Secretary-Treasurer of the Society and Business Manager of the Virginia Medical Monthly were read and approved. Dr. Preston, of Roanoke, brought to the attention of the House of Delegates the matter of the prosecution of Chiropractors and Poropractors in Roanoke by the legal authorities in that city. A motion was made by Dr. Leigh, of Norfolk, that the Executive Council be authorized, if in their judgment it seemed desirable, to employ an attorney to assist the State Board of Medical Examiners and to represent the State Society in these prosecutions, and that $200.00, or so much thereof as may be necessary, be appropriated for this purpose. This was unanimously adopted.

The Secretary-Treasurer reported on his efforts to secure automobile insurance for members of the society at lower rates than those charged by the old line companies. He recommended that for the present the members secure through their headquarters in Richmond automobile insurance including fire, theft, public liability and property damage on the basis of the return to the members insuring of thirty per cent of their premiums. Any compensation to the Secretary-Treasurer for this additional service should be left to mutual agreement between the company and the Secretary-Treasurer. This was unanimously adopted and recommended to the members of the society who desire to secure this form of protection.

The report of the chairman of the Legislative Committee was read and approved and the Secretary-Treasurer was instructed to pay the expense accounts of the chairman of this committee for his attendance on the meetings of the two sessions of the legislature amounting to two hundred ($200.00) dollars.

Dr. Williams, of Norfolk, offered a motion that the salary of the Assistant Manager of the Virginia Medical Monthly, Miss Edwards, be increased to $150.00 per month. Dr. Leigh, of Norfolk, offered as an amendment that in the event the compensation to the Secretary-Treasurer for handling the insurance of the members does not amount to $600.00 per year that his salary be increased to make his total annual remuneration $2600.00. This motion and amendment were unanimously approved. The matter of auditing the books of the Secretary-Treasurer was brought up and on the recommendation of the Secretary-Treasurer the Publication Committee was instructed to have the books audited by a competent auditor.

Dr. Peyser, of Richmond, brought to the attention of the House of Delegates the matter of members who have lost membership in local societies still retaining in some cases membership in the State Society. A motion was made by Dr. Leigh, of Norfolk, seconded by Dr. Flippin, of the University, that the Secretary-Treasurer accept the following interpretation of the society's constitutional provisions covering this point: That members of the State Society whose membership antedated the organization of their local component society did not forfeit their membership privileges by failure to join their local component society; but, that, having subsequently joined a local society they forfeited their state membership rights in case they lost or surrendered their local membership. It was also provided that if a member lost his state membership he thereby lost automatically his local membership.

THURSDAY, OCTOBER, 28TH, 1920.

A petition requesting authority to organize an Ophthalmic and Aural Section of the Medical Society of Virginia was presented by Drs. Clarence Porter Jones, James R. Gorman, James Morrison and Hunter H. McGuire. After considerable discussion by members it was referred to a committee of five of which Dr. Garnett Nelson was made chairman. This committee later reported as follows, the report being unanimously adopted: That a by-law be passed allowing any definite specialty in Medicine or Surgery to organize a section, to hold one or more meetings a year; provided the said section or sections should be composed of members of and under control of the Medical Society of Virginia and its annual meeting shall be at the same time and place as the annual meeting of the Medical Society of Virginia.

Dr. Williams, of Norfolk, brought to the attention of the House of Delegates the matter of securing such legislation as would be necessary to secure

for physicians who have passed the regular examination in one state to practice in any state without further examination. After considerable discussion it was referred to the next annual meeting of the State Society for settlement.

The work of the State Board of Health in its effort to establish in each county in the state a fulltime Health officer was unanimously endorsed by formal motion.

Dr. Preston, of Roanoke, offered the following resolution which was unanimously adopted: Resolved, that the Medical Society of Virginia express its appreciation of the work of the Bureau of Social Hygiene, of the State Board of Health, and pledge our co-operation.

The Committee on Medical Education in Virginia made the following report:

On account of the present status of the work of the Commission on Medical Education appointed by the Governor, in reference to the consolidation of the two state medical schools, your committee can not at present offer any definite report. We suggest that this committee be continued for further consideration of this question.

The House of Delegates voted unanimously to accept the invitation of the Lynchburg and Campbell County Medical Society, delivered by Dr. Carroll, of Lynchburg, to hold the next meeting of the Society in Lynchburg.

The report of the Executive Council containing the following recommendations, was offered to the House of Delegates:—

For President—Dr. A. L. Gray, of Richmond,

For First Vice-President—Dr. E. C. S. Taliaferro, of Norfolk.

For Second Vice-President—Dr. F. J. Wright, of Petersburg,

For Third Vice-President—Dr. Hunter H. McGuire, of Winchester.

Delegate and Alternate to the American Medical Association: Dr. J. T. Buxton, of Newport News, Dr. A. L. Tynes, of Staunton.

Honorary members of the State Society: Dr. Ennion G. Williams, of Richmond, and Dr. Paulus A. Irving, of Farmville.

Members of the Executive Council from the state at large: Dr. M. J. Payne, of Staunton, and Dr. H. A. Burke, of Petersburg. To represent the First Congressional District on the Executive Council, Dr. G. W. McAllister, of Hampton; the Third District, Dr. Garnett Nelson, of Richmond; the Tenth District, Dr. P. E. Tucker, of Buckingham.

Membership Committee, present incumbents;

Legislative Committee, present incumbents;

Publication Committee, present incumbents;

Necrological Committee, Dr. C. M. Edwards, of Richmond, Chairman, and Drs. S. T. A. Kent, of Ingram, and T. S. Sims, of Newport News;

Judiciary Committee, Drs. W. F. Drewry, Petersburg, Chairman, Virginius Harrison, Richmond, Hugh Nelson, Charlottesville, Frank Hancock, Norfolk, Bernard Kyle, Lynchburg, J. A. Owen, South Boston, and J. L. Early, Saltville. This report received the unanimous endorsement of the House of Delegates.

This report was read to the society as a whole and unanimously ratified.

The following resolution, presented by Dr. Isaac Peirce, of Tazewell, was unanimously adopted by the Society:—

Resolved, That the Medical Society of Virginia express its most hearty appreciation and thanks for the generous welcome extended to the Society by the profession, citizens and press of Petersburg, at this its fifty-first annual meeting It has been many years since the Society met in Petersburg, but we feel sure that we shall want to pay you another visit long before the good time you have given us is forgotten.

We want especially to thank the ladies of the committee for their generous welcome, the splendid entertainments, and good things to eat they have given the doctors and their wives during this visit; the Local Committee for the efficient way they have attended us and the unique entertainment they have provided; and the Public School authorities for the use of their splendid building and the uniform courtesy extended the members of the Society at all times.

Times have changed, but not in Petersburg, and you have shown us that good old Virginia hospitality is still with us. Long will we remember the welcome you have given us, the entertainments, and, above all, the way you have made us feel at home among you.

The Northern Neck (Va.) Medical Association,

At its annual meeting, recently held at Kilmarnock, elected Dr. H. J. Edmonds, Kilmarnock, president; Dr. M. C. Oldham, Lancaster, vice-president, and Dr. C. T. Peirce, Irvington, secretary-treasurer. Several interesting and instructive papers were read, after which a banquet was held.

The Roanoke Academy of Medicine,

At its regular meeting held the first week in October, unanimously elected the following officers for the ensuing year: President, Dr. G. M. Maxwell, Roanoke; Vice-Presidents, Drs. R. H. Garthright, Vinton, and R. M. Wiley, Salem; Secretary, Dr. J. T. McKinney, Roanoke; and Treasurer, Dr. T. D. Armistead, Roanoke.

Jos. T. McKinney,
Secretary.

The Isle of Wight County Medical Society

Was reorganized on October 12, at a meeting held at Smithfield, and Dr. Rea Parker, Smithfield, was elected president, and Dr. E. M. Easley, Rushmere, secretary-treasurer.

The Medical Review Of Reviews,

New York, will inaugurate a new department for the advancement of the science of Chemo-Therapy, beginning with the January issue. They invite the co-operation of all physicians, chemists, bacteriologists and pharmacologists, who are doing or contemplate doing work along this line, and will be glad to have contributions dealing with this science.

Virginia Medical Monthly

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PUBLISHED BY THE PUBLISHING COMMITTEE.

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AGNES V. EDWARDS,
Editor's Assistant and Assistant Manager.

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Editorial

The Petersburg Meeting.

To the Medical Faculty of the City of Petersburg the members of the Medical Society of Virginia in attendance at the recent meeting owe great thanks and appreciation for the extreme and thoughtful courtesies bestowed during the course of the sessions. The accommodations for the meetings at the Washington Street High School were commodious and adequate; the housing and home entertainment of members was in every way expressive of the complete hospitality shown on every hand by the local committee, the members of the Petersburg Medical Faculty, and the ladies; the special entertainments planned for the visiting doctors and their wives were extremely enjoyable and pleasurable.

The profession of Petersburg captivated their guests with their fine and generous hospitality and cordiality and made the workings of the sessions so orderly and smooth that the Petersburg meeting will be long remembered both for the warm and pleasant welcome as well as for the transaction of scientific sessions of high worth.

The Petersburg meeting was a great success!

The Absentee.

You missed it! The Petersburg meeting was fine! The papers were good; the discussions were up to standard. The program was promptly dispatched. The meeting was in the auditorium of the Petersburg High School and committee rooms and the hall for the House of Delegates were in the same building. The entertainments were extremely pleasant and enjoyable. Sorry you were not there. Some four hundred other members of the Society were present and they seemed to be highly pleased.

Next year the Society will meet in Lynchburg. The Lynchburg doctors intend to put forth a great effort to make the meeting as successful as the Petersburg meeting. Won't you come?

Dr. Paulus A. Irving.

You are an honorary member and Ex-President of the Medical Society of Virginia!

Your fellow physicians of the State of Virginia esteemed you so highly that you were chosen to head the Medical Society of Virginia for the year just past. You performed your duties and discharged your obligations with high satisfaction and credit. You have won through your years of service to the Medical Society of Virginia a high place in the affections and good-will of your co-laborers.

The President—Dr. A. L. Gray!

Dr. Alfred L. Gray, of Richmond, was unanimously elected president of the Medical Society of Virginia for the ensuing year. Dr. Gray well deserved the honor. For a number of years he has served the Society upon its Executive Council, working in season and out of season for its success and welfare. As chairman of the Executive Council for a number of years, the duty of piloting the affairs of the Society has fallen in his hands. He has always discharged these obligations with promptness, efficiency and success. This alone would seem sufficient reason for honoring him. But it was believed by the membership that, added to this excellent reason, Dr. Gray possessed those qualifications of mind and temperament which serve the Society well in the capacity of its chief executive. The Society expects a leader and an efficient executive who will bring its affairs to a high state of efficiency and success. Confidently, Dr. Gray is expected to measure up in every way to the standards of the Society's needs.

In addition, without transgressing the bounds of good taste, it may be said that the professional attainments of Dr. Gray, particularly in the domain of Roentgenology, are such

as to warrant the Medical Society of Virginia in conferring upon him the high honor of presidency.

Service to the Society, qualifications for the office, and professional attainments of a meritorious order and excellence, may be assigned for the grounds for the honor upon the new President.

Dr. Alfred Leftwich Gray comes of a family of professional men—for three consecutive generations there having been one doctor and one lawyer in his family. His father was the Honorable A. A. Gray, a prominent attorney of Fluvanna County, Virginia. His pre-college education was received at Fluvanna Central High School, Palmyra, Va.; he then entered the Academic Department of the University of Virginia. After three years there, he entered the Medical Department of the University, from which school he received his degree as doctor of medicine in 1897. His internship was served at the Pennsylvania Hospital, Philadelphia. Upon returning to Virginia, he located in Richmond and was elected professor of physiology, University College of Medicine. He was dean of the Medical Department of that school from 1909 until it merged with the Medical College of Virginia. Only recently he resigned as dean of the School of Medicine of the last named school. He was elected professor of Roentgenology in the Medical College of Virginia in 1916, which position he still holds and in which field he specializes. During the war, he had the rank of major in the Medical Officers' Reserve Corps, and was placed in charge of the Richmond School of Military Roentgenology.

Dr. Gray is a member of numerous medical associations. He has been president of the American Roentgen Ray Society and of the Richmond Academy of Medicine and Surgery; vice-president of the Southern Medical Association and of the Tri-State Medical Association of the Carolinas and Virginia, and ex-chairman of the Executive Council of the Medical Society of Virginia and also of the Legislative Committee.

House Of Delegates.

The House of Delegates functioned well this year. There was no hitch. The affairs of the Society were thoroughly discussed; the reports were heard and acted upon after discussion. The membership was requested to read carefully the reports of the committees and of the Secretary-Treasurer, and to note the business transacted. The financial report, in spite of the heavy cost of publishing the journal, showed the Society was in satisfactory condition, although delinquent members are yet too numerous. Of course, members who fail to pay the dues now can hardly expect to be carried.

Medical Education.

The members of the Medical Society of Virginia, reading this journal, are urged to glance over the column on Medical Education in another part of the journal. Each month there will be seen here some extract, abstract, or compilation taken from writers of acknowledged authority on this subject.

The doctors of this State must feel that this is one of the greatest problems of the present.

Medical Biography.*

In the history of this State [Virginia] are recognized the names of distinguished

* From Thacker's Biography: Medical Biography; or Memoirs of eminent Physicians, who have flourished in America. Published 1826.

medical men among the earliest colonists. "In 1608, being the year after the planting of the colony of Virginia at James Town, the arrival of Walter Russel, doctor of physic, is mentioned by the colonists; and he is afterwards spoken of as accompanying Capt. Smith on a voyage of discovery, from James Town to the Chesapeake, and up the Potomac to the Falls; and also, of having rendered surgical aid to Captain Smith, in the case of an accident which happened to him on this occasion. Some islands, which we discovered in the Chesapeake during the voyage, were called Russel's Islands, says Captain Smith, in honor of Dr. Russel. Anthony Bagnal, surgeon, is also mentioned by Captain Smith, as accompanying him on a similar voyage, made the same year from James Town to Nansamond, the place where Norfolk is now situated. Drs. Russel and Bagnall, therefore, were probably the first physicians who came over to the colony of Virginia; but whether they remained in the country or soon returned to Europe, we have no account, but it is probable that their residence in America was only temporary; for, in 1609, when Captain Smith was badly wounded by the explosion of gunpowder, he says there was neither chirurgeon nor chirurgery at the port and he was compelled to return to Europe for the recovery of his health. In 1611, Dr. Bohun is mentioned, being about to leave the colony of Virginia and to take ship with Lord Delaware for the West Indies. But no particular account is given of either of these physicians." (John Pott, Kelly's Encl. II, 283.)

John Mitchell, M. D., a distinguished physician and botanist, came from England and settled in Virginia about 1700. He wrote an interesting and original essay on the causes of the different colors of people of different climates, which was published in the Philosophical Transactions. He was also the author of several valuable productions, which will be particularized in his biography in this volume. Dr. John Claton, an eminent botanist and physician, came to Virginia in 1705; as a practical botanist he was probably not inferior to anyone of the age, and his practical observations gave him a respectable rank among the learned naturalists of that period. Mark Catesby, F. R. S., though not a physician, may be noticed as a very eminent naturalist. He was born in England, 1679, and came to Virginia in 1712, and in 1722 removed to South Carolina. He spent nearly his whole life in the cultivation of natural science. In 1748 he published a natural history of Carolina, Florida and the Bahama Islands, containing numerous plates. Dr. John Tennent, a respectable physician of Port Royal, Virginia, who brought into view the virtues of the Seneca snake root, published in 1736 at Williamsburgh an essay on pleurisy, in which he treats of the Seneca as an efficient remedy in the cure of this disease. Dr. Tennent, it is believed, was a family connection of the late celebrated Dr. Richard Mead, of London. He held a medical correspondence with Dr. Mead for many years, and it was to him that he first communicated his account of the Seneca. Dr. George Greham, a respectable physician of Virginia, emigrated to this country in the early part of the last century. He was a native of the north of England, and was educated at Edinburgh. When he came over to this country he settled at Dumfries, in Virginia, where he enjoyed an extensive practice for many years and sustained a high reputation. Dr. Currie, of Richmond, practiced through his life with great reputation. He seemed to possess, intuitively, the faculty of distinguishing the character of disease, and of discovering the remedy. He received his medical education at the University of Edinburgh. Dr. Siccary, a practitioner of medicine, was, it is believed, a Portuguese Jew. It is said by Mr. Jefferson, that we are indebted to him for the introduction of that admirable vegetable, the tomato. He was of opinion that a person who should eat a sufficient abundance of these apples, would never die. Whether he followed his own prescription, is not known; but he certainly attained to a very old age, and particularly for the climate in which he lived. The tomato is raised in abundance in Virginia and the adjoining states and is regarded as a great luxury, and by some is considered a preservative against bilious diseases. Dr. Andrew Robertson was a native of Scotland, and received his medical education at the Edinburgh University. He first served as a military surgeon in the British army in Flanders, and came to America with Braddock's army in 1775. He remained in the country, and settled in Virginia, where he acquired a high reputation, and for many years enjoyed an extensive practice. He was particularly distinguished for his charity and attention to the indigent

sick. He made several valuable medical communications, which were published in the "London Medical Inquires and Observations". He died in 1795.

Arthur Lee, M. D., was a native of Virginia, and brother to Richard Henry Lee, the celebrated patriot of the revolution. Dr. Lee received his classical education at Edinburgh, and afterwards studied medicine in that university. As soon as he was graduated, he returned to his native state and settled at Williamsburg, where he practiced medicine for several years: but afterwards abandoned the profession, went to England, and commenced the study of the law in the Temple. He soon entered into political life, and rendered important service to his country during the revolutionary war. He died in Virginia, in 1792. Hugh Mercer, M. D., a general of the revolutionary war, was a distinguished physician, who, like Warren, fell in the defence of the liberties of his country. He was a native of Scotland, and educated at Edinburgh. He early emigrated to Virginia and settled at Fredericksburg, where he practiced medicine for several years with great reputation. During the revolution, he zealously engaged in the support of the liberties of his adopted country, and fell in the battle of Princeton in 1777. James McLurg, M. D., was a native of Scotland and was educated at Edinburgh. He was graduated in medicine about 1771, and defended an experimental thesis on the bile. He settled at Williamsburg, and was by common consent placed at the head of the profession. Dr. William Baynham was long considered as the most eminent surgeon in the southern states, and was particularly distinguished for his accurate knowledge of anatomy. He died in 1814. Walter Jones, M. D., one of the most eminent physicians in our country, was born in Virginia and received his medical education at Edinburgh where he was graduated about the year 1770. He practiced in Virginia and sustained through life the highest standing both as a scholar and physician. Dr. James Craik, a respectable Scotch physician, was educated at Edinburgh, came over to this country with Braddock's army in 1755, and served as surgeon in General Braddock's campaign, after which he setttled in Virginia. He sustained an important office in the medical department during the whole of the war of independence, and enjoyed the personal friendship and confidence of Washington, and attended that illustrious chief in his last illness. He died at Alexandria in 1814, at the age of 84 years. Dr. Dick was also one of the attending physicians of Washington, but we have no information respecting his life and character.

The Medical School of the Valley of Virginia was established at Winchester in 1826. Professors were:

John G. Cooke, M. D., Professor of the Theory and Practice of Physic and Obstetrics:

Phillip Smith, Professor of Materia Medica:

H. H. McGuire, M. D., Professor of Anatomy and Physiology;

A. F. Magill, M. D., Professor of Surgery and Chemistry.

(To be continued.)

News Notes

All America Conference on Venereal Diseases

The first of a series of regional health conferences anthorized by the International Health Conference in Cannes is to be held in Washington, December 6-11. It will be devoted to a consideration of venereal diseases which, according to conservative estimates, constitute one of the world's most terrible plagues. The conference is being organized under the joint auspices of the U. S. Interdepartmental Social Hygiene Board, the U. S. Public Health Service, the American Red Cross and the American Social Hygiene Association. Prof. William H. Welch, of Johns Hopkins, has consented to serve as president, and already assurances have been received that some of the foremost physicians and sociologists will participate. Prominent health officers and sociologists from all parts of North and South America will attend.

The conference will review past experiences and existing knowledge as to the causes, treatment and prevention of venereal diseases, and will formulate recommendations relating to a practicable three year program for each of the North and South American countries participating. In addition it will make suggestions for putting such programs into effect.

In speaking of the proposed conference, Surgeon General Hugh S. Cumming, of the U. S. Public Health Service, said: "The United States is in the front rank of the countries which have organized against the Great Red Plague, and a consideration of the various measures which have proved of value in dif-

ferent communities will undoubtedly contribute much to further progress in the countries represented at the conference. More than any other important communicable disease, the spread of the Great Red Plague is inextricably bound up in a mass of social, economic, educational and recreational problems. The success thus far attending the campaign against the venereal diseases is due largely to the fact that this interrelation has been recognized and that the campaign has enlisted the co-operation not only of physicians and sanitarians, but of sociologists, judges, probation officers, educators, the clergy and good citizens generally."

This Conference immediately follows the Institute on Venereal Disease Control and Social Hygiene to be conducted in Washington, November 22 to December 4, inclusive. There are no membership dues or fees whatever.

For special information, reservation of rooms, etc., write Executive Secretary, All-America Conference on Venereal Diseases, 411 Eighteenth Street, Northwest, Washington, D. C.

The Shenandoah Medical Association

Will meet in Harrisonburg, Va., Tuesday, December 7, 1920, at 2 P. M. Papers will be read by several invited guests and the organization will be completed. All physicians in Shenandoah Valley are invited to attend.

Tests Made to Determine Mentality of Convicts.

Under the newly inaugurated policy of the Prison Board of Virginia, a test was recently made of fifty white male inmates at the State Penitentiary. Of those examined, fifteen were found to be feeble-minded and eleven "border line" cases. Twenty were normal and four were "above normal mentally. On the whole the educational record was low, although four were college men (two being college graduates); all but eight never finished the graded schools, while the majority had received very little education.

Under this new system, it is planned in time to remove from the penitentiary such of its inmates as rightfully belong in hospitals for the insane and feeble-minded. An examination is to be made of all convicts to determine medical, occupational, intellectual and educational qualifications, with a view to taking steps to improve the condition of convicts.

Two Hospitals Open In Richmond.

Dooley Hospital was formally opened in this city on October 29, at which time 34 children patients were transferred to it from Memorial Hospital. It has accommodations for 50 patients and was constructed especially for infectious and contagious diseases, but has been equipped as a children's hospital to temporarily relieve the congestion at Memorial Hospital, until the children's hospital can be erected.

St. Philip's Hospital, also of Richmond, was opened November 1. This is for the exclusive use of colored people and has a staff of colored nurses. Thirty-two patients were transferred to this hospital from Memorial Hospital on the opening day.

Both hospitals are to be operated under the auspices of the Medical College of Virginia.

Dr. A. M. Brent,

Heathsville, Va., was recently operated on at a Richmond hospital.

Dr. T. E. Armstrong,

Formerly of South Boston, Va., who recently received his discharge from service in the U. S. Naval Reserve Force, has located in Hopewell, Va., where he has accepted the position as chief surgeon to the Tubize Artificial Silk Company of America.

Married—

Dr. Basil Bradbury Jones, formerly of Danville, Va., but now of Richmond, and Miss Marion Elma Williamson, Danville, November 11. Dr. Jones is a member of the class of '17, Medical College of Virginia, and served his internship at Massachusetts General Hospital, Boston.

Dr. St. Clair Darden, formerly of this State, but now of South Bend, Ind., and Miss Ruth Milton, Richmond, Va., October 12.

Dr. Henry Augustine Latane, Alexandria, Va., and Miss Polly Graham, New York, September, 22.

The American College of Surgeons,

At its annual meeting in Montreal, during October, elected the following officers: President, Dr. John B. Deaver, Philadelphia; vice-presidents, Drs. Harvey G. Mudd, St. Louis, and Charles E. Sawyer, Marion, Ohio. Dr. F. H. Martin, Chicago, was re-elected secretary.

Dr. C. S. Maxwell,

Of Beaufort, N. C., was elected president of

the Carteret County (N. C.) Medical Society at a recent meeting.

Children's Hospital to be Erected at St. Mihiel.

In memory of America's first great battle effort in the World War, the junior section of the American Red Cross, cooperating with the French Government, plans the erection and operation of a modern hospital for children at St. Mihiel France.

Dr. Clifton M. Miller,

Richmond, Va., has, by unanimous vote, been granted a certificate of the American Board of Ophthalmic Examinations. The purpose of this Board is ultimately to advance the standards of this branch of medicine by later having a board pass on those to practice ophthalmology.

Birth Statistics, 1919.

The Census Bureau's summary of birth statistics shows that in the birth registration area of the United States, exclusive of Rhode Island which failed to send in transcripts of birth certificates, 1,365,585 infants were born alive in 1919. The total number of deaths in the same area was 791,732, the births exceeding the deaths by 72.5 per cent. The birth registration area was established in 1915 and now comprises about 58 per cent. of the estimated population of the United States.

The number of births for the year 1919 compared with 1918 shows a decrease of 7 per cent. in the registration area, each state showing a decrease. This is in marked contrast to previous years as the number of births had increased from year to year.

The infant mortality rate (number of deaths of infants under 1 year of age per 1,000 born alive) is 87 in 1919 and is the lowest infant mortality rate on record in the birth registration area.

Public Health Service Takes Over Army Hospitals.

Two army hospitals, one in North Carolina and the other in New York harbor, have recently been taken over by the U. S. Public Health Service.

The O'Reilly Hospital at Oteen, N. C., eight miles from Asheville, will be continued as a tuberculosis hospital with about 1,000 beds. Its location is beautiful and the institution is admirably adapted to the treatment of tuberculous disease. Two of the wards will be remodeled and some additional buildings will be erected for the use of the staff, especially the married staff, for whom no accommodations now exist.

The hospital in New York, variously known as the Hoff General Hospital and the U. S. Debarkation Hospital, is at Fox Hills, about ten minutes' walk from the New York City ferry station at Stapleton, Staten Island. It will be continued as a general hospital with a capacity of about 500 beds. By reason of its proximity to New York City this hospital has available the best consultation facilities in the country.

Leper Home Purchased by Government.

The Louisiana Leper Home has been purchased by the U. S. Government. The home will be under the charge of Dr. O. E. Denning and will be able to care for 500 patients.

Dr. W. S. Rankin,

Of Raleigh, secretary of the North Carolina State Board of Health, will by invitation deliver the Lamar lectures in Johns Hopkins Hospital, early in the coming year.

New State Health Commissioner in West Virginia.

Dr. Richard T. Davis, of Charleston, one of the early graduates of the University College of Medicine, Richmond, has been appointed State Health Commissioner of West Virginia, to succeed Dr. Samuel L. Jepson, of Charleston, whose term of office has expired.

Drs. E. W. and J. W. Robertson,

Of Onancock, Va., accompanied by some of their family, early in October took a motor trip which included the Valley of Virginia and several northern places of interest.

Dr. J. L. Decormis,

Of Accomac, Virginia, moved into his new home the first of October.

Dr. H. M. Miles,

Formerly of Wise, Va., is now located at Norton, Va., where he will limit his practice to diseases of the eye, ear, nose and throat.

Officers in Alumni Association.

Drs. W. B. Thornhill, Lynchburg, and Geo. T. Harris, Madison Heights, are members of the executive board of the Lynchburg, Va., chapter of the Richmond University (formerly

Richmond College) Alumni Association. Dr. Elisha Barksdale, of Lynchburg, is also a member of the Association.

Lee Highway.

Plans for the promotion of a great national highway, to be known as the Lee Highway, in memory of Gen. Robt. E. Lee, have been drawn up by the Lee Highway Association, of which Dr. S. M. Johnson, of Roanoke, Va., is general director. The original plans of the organization contemplated a highway along the Appalachian Valley, between the Blue Ridge, Alleghany and Cumberland mountain ranges. This was to begin at the Gettysburg National Park, on the Lincoln Highway, and was to run by Winchester, Staunton, Lexington, Natural Bridge, Roanoke, Bristol, Knoxville, Chickamaugua National Park at Chattanooga, and thence to Birmingham and New Orleans. The ultimate plan of the Association is to have the road extend from New York to New Orleans, and thence to San Francisco, thus making it a southern counterpart of the Lincoln Highway in the north.

Dr. Charles T. McClintock,

A member of the Medical Society of Virginia who has for sometime past made his home in Asheville, N. C., has moved to Sarasota, Florida.

Dr. A. F. Bagby,

Formerly of Petersburg, Va., after a course of study in New York, has located in Richmond with offices at 301 East Franklin Street.

Doctors Needed for Civil Service Positions.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for the followng positions:—

Anesthetist in Freedmen's Hospital, Washington, a hospital for colored patients, receipt of applications to close December 7:

Physician for Panama Canal Service, for which position examinations will be held December 15, 1920, and Janary 19 and March 9, 1921:

Medical interne for St. Elizabeth's Hospital, Washington; for this position applications will be rated as received until March 1, 1921.

For detailed information as to any of these positions, apply to the Civil Service Commission without delay.

T-B Christmas Seals.

Nine hundred million Christmas seals have been printed and distributed throughout the United States—or approximately nine seals for every inhabitant of the United States. The sale of the seals will extend from November 25 to December 31. The proceeds will be used for the support of the national, state and local anti-tuberculosis work in the country in the way of financing of public health nurses, the establishment of dispensaries and for the prevention and cure of the disease.

Virginia's quota of seals is 10,000,000. Our State Tuberculosis Association's work is financed entirely by the sale of Christmas Seals. In view of the good work being done in our midst, we feel sure each of our readers will buy his proportion.

Dr. Emily Runyon

Has returned to her apartment at Gresham Court, this city, after spending the late summer season in Connecticut.

Dr. and Mrs. F. J. Wright,

Petersburg, Va., have been recent visitors at the home of Dr. and Mrs. O. H. Whitlock, Tobaccoville, Va.

Danger in Horse-Hair Shaving Brushes.

Surgeon-General Cumming, of the United States Public Health Service, has just issued a fresh warning against the use of horse-hair shaving brushes, to which not a few cases of anthrax have been traced. He states that the service has made every effort possible, under existing laws and regulations, to prevent the occurrence of anthrax due to infected shaving brushes but, in spite of its efforts, anthrax cases occur and will continue to occur unless the public ceases to buy and use horse-hair brushes for shaving.

Experts seem agreed that shaving-brush anthrax is contracted only when the shaving brush is made of horse-hair; and Congress at the next session will be asked to prohibit the use of horse hair for that purpose. It is doubtful, however, if any effective measures can be taken by health officials to curtail the use of the horse-hair shaving brushes now in trade channels, some of which are presumably infected, except a direct warning to the public not to buy or use such brushes.

Nurses Needed By Public Health Service.

The U. S. Public Health Service needs hundreds of graduate nurses for its general hospital work but also and particularly for the care of former soldiers suffering from nervous and mental disorders. It accordingly purposes to

establish a training school for nursing in neuro-psychiatric diseases in its special hospital (No. 49) on Grays Ferry Road, near Philadelphia, where nurses with general training may take a special course in this class of work. This hospital has a capacity of 240 patients and will afford exceptional opportunities for instruction in the most modern treatment.

An appeal is made to nurses to come forward for this work. The hospitals now operated by the U. S. Public Health Service are already 150 nurses short; and the service faces the necessity of opening several new hospitals with an inadequate force. Applications should be made to the Surgeon General, U. S. Public Health Service, Washington, D. C.

The Virginia Tuberculosis Association,

At its annual meeting in October, re-elected Capt. W. W. Baker, of Chesterfield County, president, and Dr. Roy K. Flannagan, Richmond, secretary. The constitution was amended to greatly increase the number of members of the board of directors. Among the physicians named as directors are: Drs. Chas. R. Grandy, Norfolk; William F. Drewry, Petersburg; E. C. Levy and Ennion G. Williams, Richmond; B. B. Bagby, West Point, and many State health officers.

Dr. R. E. Booker,

Lottsburg, Va., recently enjoyed a trip which included Baltimore, Md., Richmond and Luray, Va.

Another Private Hospital in Richmond.

Dr. William B. Hopkins has sold to Dr. W. Wallace Gill one-half interest in the property at the southwest corner of Fifth and Franklin Streets, known as 421 East Franklin Street. It is understood that these two doctors will convert the building into a private hospital.

Norfolk Has Enviable Record.

The U. S. Census Bureau's weekly health index for the first week in October gives the death rate for cities of 100,000 or greater population and shows Norfolk, Va., to have the best record in the country. Cities of the first class had an average death rate of 11.1; Norfolk's rate was only 5.4. Akron, O., had second place with a rate of 7.3. The worst record was made by Fall River, Mass., in which the rate was 20.8. While weekly reports fluctuate rather widely and can not be said to be absolute indices of conditions, this very low rate is certainly worthy of mention.

Dr. Philip W. Boyd,

Winchester, Va., has been a recent visitor at the home of his brother in Chicago, Ill.

Dr. and Mrs. Blanton L. Hillsman

Have returned to their home in this city, after a short visit to relatives in Powhatan County, Va.

Dr. J. Thomson Booth

And family, of Ashland, Va., have been recent visitors at the home of Dr. Booth's father, in Williamsburg, Va.

Dr. Mary Evelyn Brydon,

Director of the Bureau of Child Welfare and Public Health Nursing of the Virginia State Board of Health, attended the annual meeting of the American Child Hygiene Association, at St. Louis, October 11-13, inclusive, and talked on the subject, "Health Teachers and Health Teaching," at the Round Table Conference on Child Hygiene.

Course For Health Officers.

Johns Hopkins University, beginning November 8, was to give a six weeks' intensive course in training health officers. This is free to health officers but a fee is charged those not engaged in health work. Lectures are being given on public health law; selected topics in hygiene; principles of nutrition; immunity; principles of public health administration, etc.

Dr. C. C. Hudson,

Chief health officer of Richmond, delivered an address on "Bubonic Plague" before the Richmond Nurses' Club at their regular meeting, November 4.

Capt. C. B. Crute, M. R. C.,

Who was stationed at Ft. McPherson, Ga., for sometime, spent a two weeks' leave of absence with his family in Farmville, Va., last month, en route to his new post at Walter Reed General Hospital, Washington, D. C.

Dr. Frank S. Johns,

Of Richmond was a recent visitor at the home of his brother in Farmville, Va.

Col. W. A. Lucas, M. C.,

After a furlough spent at his old home in Pulaski, Va., left about the middle of October

for New Haven, Conn., to take up his duties with the U. S. Public Health Service.

Dr. Hunter H. McGuire,

Winchester, was one of the Virginia doctors upon whom was conferred the fellowship of the American College of Surgeons, at its recent meeting in Montreal.

Dr. S. W. Maphis,

Warrenton, Va., was a recent visitor in Richmond, having come on professional business.

Dr. and Mrs. John Dunn

Have returned to their home in this city, after a trip to Bermuda.

Large Medical Fee.

Professor Vidal, the French authority called in consultation during the illness of the King of Greece, after being decorated for his services, was paid the sum of $60,000.

Dr. A. R. Gray

Has sold his home at Palmyra, Va., and has moved his family to Wilkesboro, N. C., where he will continue the practice of his profession.

The Nobel Prizes In Medicine

Have been awarded to Prof. Jules Bordet, of Brussels, for 1919, and to Prof. August Krogh, of Copenhagen, for 1920.

The American Association of Military Roentgenologists

Was organized at the annual meeting of the American Roentgen-Ray Society in Minneapolis. Officers of the Medical Corps and Sanitary Corps engaged in Roentgen-ray work during the World War are eligible to membership. Dr. Arthur Christie, Washington, D. C., was elected president; Dr. Henry K. Pancost, Philadelphia, vice-president; and Dr. Francis Borzell, Philadelphia, secretary.

Dr. Wright Clarkson,

Formerly of Mt. Solon, Va., has received his discharge from the Medical Reserve Corps, and has located in Petersburg, Va., with offices at 214 South Sycamore Street.

Marriage Reduces Criminality.

The Social Hygiene Bulletin, quoting from a report published by the Research Division, Bureau of the Census, states that a careful and impartial study of prisoners and juvenile delinquents in the United States shows a decidedly lower proportion of offenders coming from the "married" than from other classes, which would seem to prove that marriage is a strong factor making for a law-abiding nation.

The following table shows the number of criminals per 100,000 of each class:—

Marital Condition	Males	Females
Single	2,000	199
Married	531	98
Widowed	1,037	146
Divorced	2,380	361

What Everyone Should Know About Cancer.

This is the title of the most recent publication of the American Society for the Control of Cancer and, while the physician may find much of interest scattered through its pages, it is intended primarily for the laity. The fact that in the United States one person in ten above the age of forty dies of cancer makes it evident that there is a lack of knowledge of cancer and this book of thirty pages states facts in the simplest language and seeks to impress the indications for and the necessity of consulting a physician before the disease reaches the incurable stage.

Health departments, medical organizations, and others desiring to secure the book for general distribution in quantity may order it through the American Society for the Control of Cancer, 25 West 45th Street, New York City at

5,000	copies	$175.00
1,000	"	50.00
500	"	25.00
100	"	5.00

Orders for fifty copies or less for personal distribution will be furnished by the Society, free of cost.

New Home For National Research Council.

Through the generosity of a number of friends and supporters, a site for the new building in Washington, which is to serve as a home for the National Academy of Sciences and the National Research Council, has recently been obtained. It comprises the entire block bounded by B and C, and Twenty-first and Twenty-second Streets, Northwest, and faces the Lincoln Memorial in Potomac Park. Funds for the erection of the buildings have been provided by the Carnegie Corporation of New York.

Medical Clinic In Charlotte, N. C.

Drs. Wm. Allan, John R. Ashe, R. F. Lein-

bach, Oren Moore, Alonzo Myers, John Q. Myers, C. M. Strong, and J. M. Worthington, all of Charlotte, N. C., have bought an apartment in that city, which they propose to change so as to have it adapted to medical purposes to be used as a clinic.

Dr. Rooker White,

Of Keller, Va., was a recent visitor in Norfolk, Va., having gone there on professional business.

Dr. G. R. Sledge,

Parksley, Va., was chosen president of the Community School League of that place, at the organization meeting, October 15.

First Aid on Pullmans.

The Pullman Car Service is giving the American Red Cross First Aid training to the entire force of colored maids employed on the transcontinental trains. Several women have already finished the course and carry the regulation First Aid kit as part of their equipment. This company has also arranged with the New York County Chapter of the Red Cross to give the course of training in First Aid and Home Hygiene to some hundreds of maids reporting to its New York terminal.

Dr. Dean B. Cole,

Formerly with the Virginia Tuberculosis Association, but who moved to New York City in the summer, was prevented by illness from taking part in the T-B Symposium at the Petersburg meeting of the Medical Society. He is now much improved.

Dr. and Mrs. Joseph Grice,

Portsmouth, Va., returned home early in October, after an extended western trip.

Dr. A. C. Fisher

Returned to his home at Emmerton, Va., early in October, after undergoing an operation in a Richmond hospital.

Dr. Otis Marshall,

Health officer of Culpeper, Va., recently delivered an address before the Mothers' Club of the Culpeper School, on "Health and Sanitation."

Dr. and Mrs. James A. Martin

And son, of Lumberton, N. C., recently visited relatives in this city. Dr. Martin is an alumnus of the Medical College of Virginia.

Do Not Forget the A. R. C. Roll Call.

If you have not already answered the American Red Cross Roll Call, do so now. It is about the only thing that has not been hit by "old man H. C. L.," when it comes to the individual paying for it. The work done by this organization is not confined to times of war but, like the brook, "goes on forever."

Dr. Tom A. Williams,

Who recently returned to Washington, D. C., after a trip abroad, has taken an apartment at the Parkwood, 1648 K Street.

Dr. Henry A. Christian,

Hersey professor of the theory and practice of physic at the Harvard Medical School and physician-in-chief to the Peter Bent Brigham Hospital, Boston, has resumed his duties after a leave of absence of a year, during which time he has been serving as chairman of the Division of Medical Sciences of the National Research Council, Washington, D. C.

Dr. W. D. Prince,

Stony Creek, Va., was among the speakers on November 4, at the special celebration held at that place, in honor of the initiation of Gen. George Washington in the lodge at Fredericksburg, 168 years ago.

Dr. W. F. Beckner,

Formerly of Russell County, Virginia, is now located in Huntington, W. Va., where he is associated with Dr. T. W. Moore in the practice of eye, ear, nose and throat diseases.

Dental Clinics For Children.

Henry County, Virginia, recently closed its first dental clinic for children. The county appropriated $300 and the State Board of Health appropriated a like sum to pay the salary of the dentist for three months. Each child having his teeth cleaned paid twenty-five cents for that service, and each filling cost the same. This money was used to defray other expenses of the clinic. Five hundred and twenty-one children had their teeth examined; 384 had their teeth cleaned; 737 had more or less permanent fillings inserted, and 36 had teeth temporarily filled.

The American Journal of Obstetrics and Gynecology,

Published monthly by the C. V. Mosby Company of St. Louis, made its initial appearance

in October. It has an editorial board composed of prominent specialists in these branches and and represents the American Gynecological Society, American Association of Obstetricians and Gynecologists, and the Obstetrical Societies of New York, Philadelphia, and Brooklyn. The journal contains interesting material, is nicely gotten out, and deserves a good reception.

For Sale—

Good home and unopposed busy country practice. Between Richmond and Fredericksburg. Convenient to school, churches and railroad. Collections and climate excellent. Terms reasonable and can be arranged to suit. Good reason for selling. If interested, address "Dr. J.," care this journal.—(Adv.)

A No. 1 Location

For a young physician. Nothing to sell. Address "26," care this journal.—(Adv.)

Splendid Location For A Doctor

Eight miles from city limits of Richmond, on a good road. New house; 50 acre farm. For sale or rent. Address "Owner," care this journal.—(Adv.)

Wanted To Buy—

Used Gas-Oxygen-Ether apparatus. Must be late model and in first class order. Give full particulars and lowest cash price. Address "M," care this journal.—(Adv.)

Obituary Record.

Dr. Robert Iverson Hicks,

A well known physician of Warrenton, Va., died in Washington, D. C., October 16, following an operation. He was born in Granville County, North Carolina, about 87 years ago. Upon completion of his academic education, he entered the medical department of the University of Pennsylvania, from which he received his diploma in 1856. At the outbreak of the war between the States, he entered the service as surgeon with the Twenty-third North Carolina Regiment of Infantry and after active service was made brigade surgeon. After the war, he practiced in North Carolina for a time and then moved to Fauquier County, Virginia, where he continued the practice of his profession until he retired about ten years ago.

Several children survive him.

Dr. Hicks was elected a member of the Medical Society of Virginia in 1882 and an honorary member in 1906; he was also an ex-vice-president of the Society and a member of the State Board of Medical Examiners from 1889 to 1894.

Dr. William J. Coleman,

A prominent physician of Louisa County, died at his home in Mineral, Va., October 31, after an illness of several months. Dr. Coleman was born in Spotsylvania County, Virginia, in 1856. Upon completing his academic education, he entered the Medical College of Virginia, from which he received his degree in medicine in 1879. He later took a post-graduate course in the University of the City of New York. He first practiced in Pennsylvania, later locating in Mineral, where he was engaged in active practice for a period of over thirty-five years. He joined the Medical Society of Virginia in 1879. . Dr. Coleman was active in church work, was a Mason and member of the Odd Fellows and was one of the first trustees of the Mineral district school board. His widow and several children survive him.

Dr. Isadore Dyer,

One of the South's most prominent physicians, died at his home in New Orleans, October 12. He was a native of Galveston, Texas, and about fifty-five years of age. After receiving an academc degree at Yale, he entered Tulane University of Louisiana, School of Medicine, from which he graduated in 1889. He later became dean of this school and was professor of diseases of the skin. Dr. Dyer was always active in work for the advancement of medicine and surgery in the South and was one of the organizers of the Southern Medical Association and its third president. At the time of his death he was a member and one of the vice-presidents of the Council on Medical Education of the A. M. A. and a member of the National Board of Medical Examiners. He was an ex-president of the American Association of Medical Colleges and for nearly twenty-five years, to the time of his death, was co-editor of the *New Orleans Medical and Surgical Journal.* He received special distinction through his investigations on leprosy and was one of the men instrumental in the establishment of the Louisiana Leper Home.

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Original Communications

CO-OPERATION OF THE PHYSICIAN IN THE TUBERCULOSIS FIGHT.*

By R. K. FLANNAGAN, M. D., Richmond, Va.
Director Virginia Tuberculosis Association.

Tuberculosis is coming under control. Even with the poor reporting that existed back in 1915, there were 4003 deaths from this disease recorded at the Bureau of Vital Statistics. In 1919 the figures were only 3355, a reduction of 648 deaths in four years' time.

This reduction is due mainly to the co-operation of Virginia physicians, their improved morbidity reports, their improved diagnostic methods, their frankness in early telling the whole truth to patients, and their belief in modern methods of cure. That this reduction is not greater by far is also due to physicians, but not the same physicians. There are many doctors yet in Virginia whose cases of advanced tuberculosis day by day knock at the doors of our sanatoria too late for human help. Far be it from me to take such physicians too severely to task for failure to detect a disease in its incipiency that sometimes puzzles experts even in the moderately advanced stage. Few doctors, I fancy, are in a position to throw many stones. There is, however, less excuse now than there used to be. The whole medical profession is now fully convinced that they are not reading death warrants to patients when they diagnose tuberculosis in the early stages and so the greatest bar to frankness is forever removed. It is not difficult now for a tender-hearted doctor to tell the whole truth.

The following limericks tell in "before and after" form the whole story:

M. D.—T. B.—N. G.
A weak, tender-hearted M. D.
Had a patient with early T. B.
He called it a cold
And the lie that he told
Catalogued that M. D. as N. G.

To the contrary—

OH BLISS!
A competent doctor named Bliss
Had a case of tu-ber-cu-lo-sis.
He told the whole truth
And now a bright youth
A nice, shiny coffin will miss.

The number of object lessons in every neighborhood—arrested cases of tuberculosis from Catawba, Blue Ridge, Piedmont, Saranac Lake, Asheville, and elsewhere—may be pointed out as examples of the fact that death and early diagnosed tuberculosis have parted company. The up-to-date physician is therefore on the "*qui vive*" with respect to his own patients and even with the house contacts of those patients. All of you, however, will readily agree that this is not enough if the disease is ever to be controlled. Every physician knows that tuberculosis is so insidious that the damage is done oftentimes before he gets a chance to advise. It is the neglected case and its contacts, therefore, that constitute the problem, and upon this class of cases must the attack be made.

It is upon this case, that the doctor sees only casually or not at all, that the Virginia Tuberculosis Association seeks to concentrate its efforts. The Association appeals to the medical profession for a fuller co-operation than has heretofore been given. It is in a better position now than ever before to claim their confidence and support.

The Association has recently adopted a new constitution which is designed to broaden the work and bring about a greater participation in its affairs by interested people throughout the State. There are sixty-eight representative and influential men and women from all over

* Read as part of the Symposium on Tuberculosis, at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

the State now on the Board of Directors, twenty-three of whom are graduate physicians. The plans for the coming year contemplate the organization of local committees or the utilization of existing organizations to expend for tuberculosis work a heavy proportion of the proceeds of the tuberculosis Christmas Seal fund in the locality in which the money is raised. An important part of the State Association work will be the seeking out of early cases through a series of clinics sponsored, and as far as possible conducted, by the heads of the State Tuberculosis Sanatoria. As far as means permit, follow-up work will also be done. Under this plan, seventeen counties were visited during the past twelve months by clinicians holding four day free chest clinics. Over 6000 Virginia people have had their chests examined by specialists in these clinics and hundreds of incipient cases found. This plan is to be continued, and if possible, enlarged in scope. These clinics find the case that does not go to the doctor and examine the cases that the doctor brings or sends. Every doctor in the community, whose name and address we know, is always notified in advance of the clinic. Whatever morbid condition is found is reported to the family physician.

The Association, too, is trying to stimulate the building of local sanatoria for tuberculous patients. A bed for every death is said by experts to be a most conservative estimate of the actual need. This would mean that Virginia needs over 3000 beds for tuberculous patients. She has approximately 600, counting private sanatoria. It is hoped that before hospital facilities have reached the total of our present mortality, our tuberculosis problem will, by the general improvement in hygiene and sanitation and in the knowledge of prevention of disease, have contracted to proportions less appalling.

Thirty-three hundred known deaths last year from one preventable, curable disease! Shall we not as physicians at least inquire whether our participation in the fight against this disease is all that it should be? The campaign against tuberculosis is a campaign in a war against disease in general, and warfare, to be successful, means organization. Guerrilla fighting is a phase only of the beginning of successful warfare. (The later stage only of unsuccessful warfare). We have now passed that stage. The assistance of individual doctors in the clinic work of the Association, except for a few instances, has been splendid, but it has not been co-ordinate, and, in this lack of unity of purpose among physicians, lies the greatest weakness from which the campaign suffers. The doctors almost always co-operate with the clinicians and, in the main, are friendly to each other, but as a body they lack the cohesion necessary to get the best results in meeting community problems, and the control of tuberculosis is distinctly a community problem. Physicians are very poorly organized to meet their common difficulties and to achieve their common purposes. In my judgment, the best way the medical profession can co-operate in the tuberculosis fight, the typhoid fight, the infantile diarrhœa fight, the venereal disease fight, the pneumonia fight and the fight against every other kind of preventable condition that promotes death—and it is to the postponement of death their efforts from time immemorial have tended—is to get together in compact organizations and, while reporting their cases and recording their successes and failures, not forget to put in their program each time a topic relating to community health and welfare.

The doctor by tradition and training is an individualist and much of his scientific advance has been the result of this individualistic attitude. He is, however, now living in a highly organized world that is getting more and more communistic as time goes on. He must gravitate more towards his fellows and cohere, and as he arrives at a better understanding with them, as their common aims and purposes become known and appreciated for what they are—and the doctor's citizenship takes the meaning that the boost of his brothers will inevitably stamp upon it. Disease, his hitherto unconquered antagonist, will yield its community strongholds to united attack and the doctor, as a conservator, as well as a healer, will come into his own. The old order changeth. Read the signs of the times and, with open mind, face with unity whatever problems it brings. For in union alone there is strength. Tuberculosis control is but one of the problems challenging your attention. Your united help can solve it. Divided as you now are, this and many other community problems pass for their solution (and make no mistake.

these problems will be solved) into other hands less qualified for the task.

I urge you, therefore, to strengthen your local medical societies by every means in your power and let no engagement not of life and death proportions prevent your attendance and active participation in their deliberations.

CO-ORDINATION OF ANTI-TUBERCULOSIS AGENCIES.*

By WALTER C. KLOTZ, M. D., Charlottesville, Va.
Medical Director of Blue Ridge Sanatorium.

At the close of the war, the period of adjustment following the armistice and demobilization was naturally a time for serious reflection and consideration of what had been accomplished in our fight against tuberculosis during the last thirty years. It was the logical time to take stock, as it were, to make a critical analysis of the various methods that had been employed in this campaign and to ascribe to each its practical value and share in the results that have been brought about. Those of us who gave up our work at home to follow some anti-tuberculosis activity abroad were fortunate in obtaining a double perspective and broader view of the situation. Obliged, on the one hand, to make comprehensive surveys of problems to be met, we were naturally forced, on the other, to consider more critically and carefully the American methods of procedure we were trying to introdnce and apply.

Thns, in studying the situation in France, the most striking feature that met us was the lack of a *comprehensive scheme of organization* and the absence of a unified plan of attack. We were struck by the brilliancy and genius displayed in isolated instances, but encountered on many sides a marked tendency to *individualism.* There was no national tuberculosis association or any other national scheme of publicity and education which could organize a generalized programme. The result had been that so many efforts remained localized.

While some of the most epoch-making discoveries had had their origin in France, so much so that the introduction of American methods might even seem a presumption, they had never been co-ordinated with any broad scheme of application. The principal efforts had been directed toward study and research along bacteriological lines, the tubercle bacillus, immunology, and prevention of infection. But, except in a few instances, little attention had been paid to the immense social background of tuberculosis wherein are grouped the many interacting, and correlated predisposing factors that play the more important part in the development or evolution of clinical active tuberculosis.

Reflecting from our experience abroad, it was only natural, once we were ready to resume our work at home, that we should search more carefully our own methods and be more awake to the defects and faults of our own campaign against tuberculosis. In this spirit of self criticism we found that, to a certain extent, some of the faults that we had found abroad existed also in our own country. It has come to be accepted by many, that we too have spent too much energy along the lines of infection instead of paying more attention to the predisposing factors, such as sanitary conditions of homes, factories and schools, personal hygiene and the many social errors that lie at the bottom of the whole question; the real causes that bring about the development of manifest tuberculosis as distinguished from simple infection.

The other point that has been brought out by this study is the fact, that in the campaign against tuberculosis we have been seriously handicapped by the lack of more active and more general co-operation on the part of the practising physician, particularly the general practitioner in the rural portions of our country. The details in this connection will be brought out more fully after we shall have considered certain general aspects of the tuberculosis problem.

It is not in place here, nor is it the purpose of this paper to enter into any academic discussion of such questions as *immunity through infection* or *superinfection in the adult.* It may be safer not to take too extreme a view or to assume that any immunity that has been acquired by infection is absolute. Massive infection should always be guarded against, especially in young people. Because we vaccinate successfully against smallpox and typhoid fever, we do not necessarily abrogate former precautions as to quarantine or protection of water supply. Prevention of infection would

* Read as part of the symposium on Tuberculosis, at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

undoubtedly be the ideal to strive for, but it seems impossible to realize, while on the other hand we can bring about practical results by diminishing or ameliorating the predisposing factors. It would seem wiser, therefore, in our general propaganda at least, to modify the information given out to the public, in order to allay phthisiophobia which has developed to such an extent as to obstruct the very measures that would make far greater safety and protection of the community.

One point that should be brought out and emphasized repeatedly, however, is the fact that exacerbations of chronic tuberculosis which we meet with clinically are not the result of recent infection but represent only one episode in the long course of tuberculosis infection, in that particular individual. The correct conception of this fact has a very important bearing upon our attitude toward the tuberculosis problem. If in a given case, for example, there is a history of occasional exposure to infection, one year or six months ago, and the patient on examination presents the physical signs of a chronic fibrocaseous process obviously of years' standing, it may be very consoling to a relative, to be able to tell him definitely, that such recent exposure was not the source of the disease. Many cases of supposed conjugal infection are probably the result either of coincidence or living under the same unfavorable environment. It is certainly difficult to prove the fact of infection in these cases.

In the prevention of tuberculosis we must seek out and remove the factors that lie in environment. We must search for and discover the individual before the disease becomes manifest. We talk glibly about removing an advanced open case of tuberculosis from the home in order to protect the rest of the family from infection, when the condition has probably existed for some years, and all the members of the family have been infected long ago. The proper time to prevent infection would have been before the disease had become active and the case an open one. Under such circumstances the most efficacious plan of prevention would be to build up the resistance of the children in such a family, in order to prevent infection, which presumably has taken place, from developing into active clinical disease. It will be a more profitable investment to see that such children have a healthier environment, that they are better housed, that they are better fed, that their resistance is not further impaired by physical defects, that their immunity is not undermined by long hours in poorly built and badly ventilated school houses; that they are protected after they leave school and begin to seek a livelihood by a proper inspection and control of factory and labor conditions. It is along such lines that our educational and awakening propaganda should be directed. We have devoted too much time on the tubercle bacillus itself, when we could have expended our efforts more profitably by making the soil unfavorable and thus rendering the germ harmless. This must not be interpreted as deprecating the research work of the laboratory. Its contributions have been invaluable and the search for a remedy for tuberculosis has been the incentive to some of the greatest discoveries in immunology. But for the purpose of popular education and as a basis for a social campaign against tuberculosis, we shall accomplish more if we accept the ubiquity of the tubercle bacillus, if we acknowledge the hypothesis of childhood infection, and the latency of tuberculosis; if we start out in our attack with the assumption that the average adult of civilized races is relatively immune against external superinfection, as a result of that childhood infection, and that our efforts toward prophylaxis, as well as those of treatment, must be based upon the hygienic principles, that will bring about the greatest resistance, the greatest degree of immunity and the maximum antibody production.

Taking up the tuberculosis problem of Virginia we find that it is a fairly formidable one, not only because of the number of cases existing, which can only be approximated on the basis of the mortality figures, but also for the reason that it is so largely a rural problem and therefore presents a number of difficulties. There is, furthermore, the factor of tuberculosis of the colored population which in itself constitutes a matter for serious study and contemplation. It has been difficult to make a very satisfactory study of the mortality statistics for the reason that Virginia was not added to the registration area until 1912. For that reason a very exact determination of the various curves for urban and rural, or for white and colored, is not feasible. Nor is it possible,

with the figures at our disposal, to make accurate curves for the differential tuberculosis mortality, and show variations in the different forms of tuberculosis. However, the curves for the last five years, showing an annual number of deaths averaging more than 3,000, would make it safe to assume that there are at least 18,000 open active cases of tuberculosis, with an additional 18,000 less advanced but active cases, at any one time.

There are at the present time 400 beds for white patients and only 100 beds for colored patients in the State Sanatoriums, with probably less than 100 additional beds for indigent or semi-indigent patients in all other institutions in the State. For the greater number of existing cases, therefore, there are no facilities for institutional treatment. But, even if such facilities did exist, it is safe to assume that most of the beds would remain vacant unless other co-ordinated agencies were to be established in order to bring these patients in touch with such institutions. The sanatorium operating alone as an isolated agency would fail to reach most of them. However, there are probably not more than four tuberculosis dispensaries existing at the present time, all located in the larger cities. No permanent tuberculosis dispensaries have been established for the rural population, although an attempt to establish them has been made in one county.

There is obviously great need therefore for more extensive organization and better machinery in order to search out and discover the greater number of patients, many of whom are unaware of their condition, not taking any treatment, observing no precautions toward preventing the further development of their malady. In order to bring them under control for purposes of education as much as for treatment, there is urgent demand for a comprehensive system of dispensaries which must, however, be permanent institutions. There must be an adequate staff of public health visiting nurses operating out from these dispensaries to reach the most remote mountain settlements and to bring the patients to the dispensaries for examination and diagnosis each regular clinic day. Such dispensaries should work with the local practising physicians and provide the services of a full-time tuberculosis specialist, who shall act in a consulting capacity, co-operating with the local physicians, but not undertaking to prescribe for or treat any patients, unless they are too poor to pay a private physician; or only if requested by the family physician.

In suitable cases, the dispensary consulting physician should recommend institutional treatment through the family physician, but should not refer patients directly for admission. For the rural communities, it would be sufficient to hold such dispensary sessions once in two weeks, the personnel being furnished by or through a central dispensary located in the principal city of the county. The intervals between dispensary sessions should be used by the nurses for intensive follow-up work and individual education and demonstration. Special diagnostic features, such as X-Ray, laryngeal and other special examinations, could be provided at the central dispensary to which patients from the rural dispensary would be referred. The central dispensary might well be connected with a local hospital.

These dispensaries should also be in very close relation to the sanatorium, and patients should be referred back to them after discharge, in order that they may be followed up by the visiting nurse to see that they continue to carry out the instructions they may have received and in this way help to insure a greater permanency of benefit. Such a system would help in selecting the cases suitable for sanatorium treatment, and promote the efficiency and usefulness of these institutions considerably, by preventing recurrence after discharge. For, to repeat once more, the acute exacerbations of chronic tuberculosis are only single episodes in the life history of tuberculosis infection of the individual and permanent arrest can only be secured or attained by careful observation and supervision over a much longer period than most patients can be induced to remain at a sanatorium.

Left to itself as an isolated unit without any correlated agencies, the sanatorium sacrifices much of its usefulness in the general campaign against tuberculosis, because it would fail to reach but a small number afflicted. The care of the patient after the sanatorium treatment has come to be a much discussed and serious problem.

Finally, as the tuberculosis problem is so intimately related to all other public health problems, its various agencies should be in rela-

tion with all existing public health agencies in a given community. The tuberculosis dispensary might with advantage be linked up directly with a diagnostic or health center and in this way work hand in hand with child welfare, infant hygiene, life extension, school inspection, housing commission, factory control, sanitation, and all other public health agencies. But all these agencies will fail to attain the maximum degree of efficiency unless they have the hearty interest and co-operation of the practising physician. This question requires fuller consideration.

There are two important reasons why, in connection with tuberculosis work especially, we have hitherto failed to obtain the necessary co-operation of the private physician; one of these is that there has been a lack of instruction and training in tuberculosis at our medical schools and the second reason is that in many instances tuberculosis work, as well as many other social activities, has been initiated by laymen without taking physicians into their confidence.

Taking up the first point—the lack of a proper knowledge of tuberculosis—it is obviously not through any fault of the doctor, if he has but a hazy idea of tuberculosis. This subject has been seriously neglected in our colleges and hospitals. There are few schools that require systematic special instruction in tuberculosis. Furthermore, since the infectious nature of tuberculosis has been established, patients suffering from this disease have been banished from the general hospital, where they could be studied in correlation with other diseases of the chest and where autopsy findings could be compared with the physical signs, X-Ray findings and clinical symptoms. Strong pleas have been made recently in favor of a separate ward or small pavillion in connection with general hospitals, to provide a limited number of tuberculosis patients for teaching purposes.

There is the greatest need for thorough undergraduate instruction in this subject, in order that our coming physicians may understand tuberculosis in its broadest clinical, biological and sociological aspects. It is not sufficient merely to make a physical examination and discover the ultimate rale. What is required is the ability, from the history, clinical symptoms and physical signs, to reconstruct the whole history of the disease in the given individual, in order to decide what were the causes and factors that brought about the evolution of active tuberculosis; then, knowing all these facts, including a knowledge of the financial, domestic, and social condition, to decide what is to be the best way of treating him and what are the prospects of his getting well.

Considering finally the co-operation of the practising physician, it should be emphasized again that no plan of anti-tuberculosis organization that does not include him in its plan and scope can hope to attain the fullest degree of usefulness. It is a very just criticism of many social and philanthropic efforts, initiated by laymen from the highest humanitarian and most unselfish motives that they have not taken the practising doctor into their confidence and made him a partner of their activities. Particularly in the rural districts the family physician exercises a great influence over his patients throughout his community, and could be the first to direct them towards the nearest tuberculosis agency available. He should be made acquainted with the location and scope of such agencies and know the most direct method, by which he can avail himself of their help. He should remain in intimate relation with their operations.

It must be considered, furthermore, that the private practitioner has an inalienable right to earn a livelihood by practising his profession. Neither public nor private efforts at bettering community health should interfere with this privilege, which has been granted him by the State on the basis of certain educational requirements. These represent capital invested. The public agency should not seek to divert his patients, prescribe for, or treat them, unless they actually require such help as he cannot give them. It should sustain the doctor, as far as is consistent with the interests of his patients. The public health agency may help him in confirming a diagnosis that he might be reluctant to make, in view of the still existing feeling and sentiment against tuberculosis as a social stigma. It may also help him by placing at his disposal special knowledge and facilities in the way of laboratory and X-Ray examination, for example. In return, it is only fair that he should extend his aid in the fight against tuberculosis and more especially, by re-

porting suspected or definite cases, help in locating the centres of infection. Operating in this way, his prestige will not suffer, nor will he incur material loss. On the contrary, a greater interest in, and knowledge of, health matters in his community will only increase his influence and scope and be to his own practical advantage, provided he is sufficiently progressive to take advantage of such facilities and wide awake to follow the newer trend and development in the field of medicine. The time may come when we shall adopt the oriental system of paying doctors to prevent disease and when all physicians will be full-time men paid by the community of the state. But, until that time comes, we must enlist the private doctor as an important and valuable ally in our plan of campaign against tuberculosis.

MOUTH-BREATHING.*

By E. E. WATSON, M. D., Salem, Va.
Physician-in-Charge, Mt. Regis Sanatorium.

I will preface my few remarks by saying that I have not attempted to cover the subject of "Mouth-Breathing" in a broad way, and will only discuss briefly a few practical points which have a definite bearing on the diagnosis and treatment of pulmonary and laryngeal tuberculosis.

Of the several functions of the nose, the respiratory is probably first in importance. Before passing to the delicate structures of the deeper respiratory tract, the air is tempered, humidified and filtered, if the nose be functioning properly. There are many causes for interference with this respiratory function, but those which are most frequently met in my practice, which is composed largely of adults, are deviated septa and nasal spurs, hypertrophic rhinitis, and less often adenoids and nasal polypi, the latter being practically always only a symptom of ethmoiditis.

We are all perfectly familiar with the train of symptoms attending Mouth-Breathing. There is always a chronic pharyngitis and laryngitis, and usually the inflammatory changes extend to the trachea and large bronchi. There may be a dry, hacking cough, hoarseness, particularly in the morning; a tired feeling in the larynx or, in winter especially, there may be a severe cough with expectoration, pains in chest, dyspnoea, and general malaise. Not infrequently mouth-breathers expectorate blood-stained sputum on arising or may only have a taste of blood in the mouth. Naturally, such symptoms, when they persist, cause the patient to suspect tuberculosis and he consults his physician. That a definite diagnosis often offers great difficulty is patent, especially where we can obtain a history of exposure to open tuberculosis during childhood.

Hamman in a recent paper before the North Atlantic Tuberculosis Conference, in Richmond, made the statement that no field in medicine presented such difficulties or required greater skill on the part of the phyiscian than the diagnosis of diseases of the lungs. He showed a case with a negative history and in which the physical findings and stereo-X-Ray plates were not sufficiently positive to make a diagnosis of tuberculosis, but the sputum was positive for tubercle bacilli. With this in mind we can readily appreciate how difficult it often is to exclude tuberculosis in mouth-breathers. Often the patient will say that he breathes perfectly through his nose, but will come back a few days later and inform you that some member of his family tells him that he breathes through his mouth while asleep. The similarity of the clinical picture presented in chronic laryngitis of the mouth-breather and that of an early tuberculous larynx, makes the differentiation particularly doubtful, when occurring in a patient with a frank pulmonary tuberculosis.

It is not unusual to have a case of definite open tuberculosis which does not show the improvement that we had hoped for and expected and careful study of this patient reveals the fact that he breathes through his mouth while asleep. Correction of the nasal obstruction may be and often is followed by immediate cessation of cough, expectoration and the other symptoms which have been giving us concern. In a case of long standing, the habit may become so fixed as to take a great deal of patience and persistency on the part of the patient to correct.

In a study of our statistics at Mt. Regis, I find that during the first five years we have diagnosed tuberculous laryngitis in twenty per cent. of the cases. These varied in severity

* Read as part of the symposium on Tuberculosis at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

from a slight enlargement of the arytenoids or a gray elevation of the interarytenoid fold to horrible ulcerations sometimes extending to the fauces. In the past two years ten per cent. have been diagnosed as tuberculous laryngitis, though the class of cases has averaged about the same. I believe this reduction to be due to the increasing realization of the importance of proper breathing and correction of nasal defects, with a prompt clearing up of the laryngeal symptoms. To say that seventy-five per cent. of our unquestioned tuberculous larynx cases have occurred in mouth-breathers would be no exaggeration. This to me is sufficient evidence to warrant a plea for more careful attention to the nose in our early cases in order that our patients may have lessened the possibility of so serious a complication. Gratifying results are often seen in ulcerated larynx cases by the use of absolute rest to the voice, local applications, reflected sunlight, etc., but the first step should always be to see that the patient does not breathe through the mouth while either awake or asleep.

SUMMARY.

In conclusion let me emphasize the following points:

1. The examination of every chest should begin with the nose.

2. Mouth breathing may cause symptoms simulating pulmonary, as well as early laryngeal tuberculosis.

3. Correction of nasal obstructions is most important in getting the best results in treatment of laryngeal and pulmonary tuberculosis.

4. The diagnosis of chest conditions is the most difficult in medicine and accurate conclusions can be best arrived at by a proper interpretation of a detailed history, by thorough and repeated laboratory examinations, by stereoscopic X-Ray studies and a careful physical examination.

That tuberculosis may be present when we are not able to find it by X-Ray and physical examination cannot be doubted. We can often only make a tentative diagnosis by exclusion and the patient should receive the benefit of the doubt and be given treatment.

In 1918, Trudeau Sanatorium at Saranac Lake, New York, with its staff of eminent specialists in physical diagnosis, X-Ray and laboratory departments, and with a consulting board which meets every week, classified 42 or 16% of admissions as doubtfully tuberculous. Why should we hesitate to say that we don't know? As Dr. Hamman says, and as is done by those sanatoria with which I am familiar, this class of cases should be reported as doubtful and not used to boost the Sanatorium statistics.

I trust that in presenting this subject to this meeting it will cause no one to neglect the proper study of the chest while hunting for the unusual, for, after all, tuberculosis is unquestionably the most frequent cause of chronic cough and the other symptoms above enumerated. I wish, on the contrary, to emphasize the difficulties in diagnosis which the lungs present and to plead for a more painstaking and detailed study of each individual case.

CURBING TUBERCULOSIS.—TWO SUGGESTIONS OF AT LEAST TENTATIVE VALUE.*

By STEPHEN HARNSBERGER, M. D., Catlett, Va.

My part in the World War was culling the unfit from the fit. Eight hundred and fifty registrants came up for inspection in my county of Fauquier. Two hundred and fifty of this number were examined the first four days. Twenty-five were turned down on account of incipient tuberculosis. Two preliminary questions were asked. First: "Have your health and habits in any way interfered with your ability to earn a livelihood?" The first registrant set aside on suspicion of tuberculosis answered "No." To the second question, "Do you consider that you are now sound and well?" he answered "Yes." I then asked him, "On what grounds?" His reply was, "I never took a dose of medicine and was never sick in my life." I told him to take a seat and I would consider his case later. I had mentally set him down as tubercular. In fact, I segregated all or nearly all of them by looking at them. When I had the opportunity, I found this man running a temperature and with the signs elicited after forced expiration, cough and quick inspiration.

An army medical officer, who was present, insisted on my sending all such mild cases to camp. He said I examined too closely—more rigidly than the regular army staff did. I told

* Read as part of the symposium on Tuberculosis, at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

him that I did not examine them at all; just looked at them and then put them aside until I had time to "check up" my opinion by confirmative evidence. This man in a rather excited manner asked, "Are you turning me down for tuberculosis?" I said, "Yes, but don't let it worry you, for if you do as I tell you, you will soon be well." The third day he came back saying, "I did as you advised me and I feel sure that I am going to get well." He is well and back at work. And all the others, so far as I can learn, are well. Now this should appear in large type, because it carries a valuable lesson. Many of the registrants and a large number of their parents and friends were bitterly opposed to their being forcibly dragged to town and from their business. But it seems to me that the best thing that could possibly have happened to them was to find out so early that they were among the physically unfit. For it was the undoubted means of saving them from a premature death or a lingering state of invalidism, with all the accompanying dread and danger to others.

I believe it is agreed that one open case of tuberculosis infects ten others. Then it is easy to understand what a drain of young manhood in this State alone was rescued from tuberculosis by this compulsory examination of registrants. Ten per cent. of 850 in one county! and we have over one hundred counties and several large cities in the State. Figure it out for yourself. I grant that ten per cent. is not a great showing, but it is assuredly of tenable and tentative value, and should in due time lead to the appointment of a special commission of health workers, physicians and lawyers, to study and report on the question at some future meeting of this Society. It will take time to perfect co-ordination and co-operation but, if intelligently and energetically pushed, it will win in the end; especially if we get the women to lend us their never failing or faltering spirit and interest in the matter. Compulsory education will lead to compulsory examinations and when these two essential factors of success work in unison, under the spur of adequate interest, we will reach a minimum level of increase in the incidence of tuberculosis, and not till then.

Poverty, ignorance and discontent, combine to nullify any method of action inaugurated to prevent this and other communicable diseases. Therefore, it is easy to see that people must work—which means that they must provide and live better, in order to forestall tuberculosis. Compulsory education will help after a time but compulsory examination is the only immediate dependable means by which tuberculosis can be blocked to the safe point of potential danger. Millions have been spent in this country in the past third of a century to check tuberculosis and yet we are just able to record limited progress. In England, where the work has run longer and also at an enormous cost, the benefit has not equaled the persistent effort and the financial outlay. If you will pardon a homely expression, we are still "chewing the bag" but we have not "tasted the pudding." Shall we continue to chew the same bag?

I cannot but think that the economic tragedy of the past must give way to a new era of constructive effort, if we expect to cope with tuberculosis in its prevention. It should be kept in mind that the stability of state governments depends upon the ability of the people to perform essential service. The people must recognize the fact that the public welfare is vitally affected by the potential and actual continuance and spread of tuberculosis. Lectures and circulars have not substantially lowered its incidence, principally because the basis of its progress has not yet been properly and adequately attacked. Discover the Incipient Cases. See that they are segregated and scientifically cared for and I confidently believe that in a generation or two maximum eradication will be secured. As long as we have poverty and ignorance, through illiteracy, we will have tuberculosis, but that is no excuse for not giving the best, though untried means, a trial. We must not only consider in the cost of tuberculosis the items of professional service, drug, nurse and funeral bills, but which is far more important, *the waste to productive efficiency and prosperity.*

I am fully persuaded that the definite institution of systematic examinations should become a necessary part of state and municipal endeavor. States should take hold on this extension of medical supervision, not as it is today but in its larger sense. We cannot rely upon parents in the effort to further the physical well-being of their children. We have given years to that plan and we can now see that it

is practically of meager and slow benefit. We must change our past and present way of trying to teach children the fundamentals of physical soundness through the parents. The fossilized mind of adult life refuses to acquire and hold the health demonstrations which are every day brought to their ears and before their eyes. They are, though innocently, of those who have ears "but hear not" and have eyes "but see not." Let us begin anew and bring such subjects before the children every day, while they are at school, by two or three minute talks—not long lectures to tire and block their interest and intelligence, but just a fact today, another tomorrow, and so on. It will be quickly evident that they are imbibing knowledge and understanding. They may not at first seem to give attention, but the facts taught will lodge and in a little while they will prompt their parents when they see or hear them go contrary to what they have stored up: and the grasp will grow firmer from month to month and year to year. By the end of the first generation, this child knowledge and interest in public health matters will rapidly advance, and by the second generation, at least, both children and parents will become familiar with the rules to better health; the moral and physical development will be so well promoted, the benefits so clearly fixed in their minds, and interest in such a vital matter so brought to the forefront, that parents will keep the public conscience alive to the importance of the public health as the basis of economic efficiency and the best assurance of permanent personal comfort and happiness.

These two suggestions, I am led to believe, though they may now seem remote in practice, will eventually be regarded and accepted as the final effective effort in the fight against tuberculosis.

Children's brains are plastic, and instantly receptive, their intelligence alert. They will quickly see when their parents err in not following the accepted up-to-date problems of hygienic betterment and the prevention of communicable diseases. The adult brains are, as it were, fixed and the older the age the less responsive to the constructive side of health, care and development. This makes them forgetful and fosters inattention. The earlier in life that health facts are taught, the stronger and more lasting the impression and the greater the certainty that they will find fixed lodgment and commensurate practice.

X-RAY IN PULMONARY TUBERCULOSIS.*

By J. T. McKINNEY, M. D., Roanoke, Va.

The splendid work being done by our Public Health officials, physicians, nurses and laymen in the eradication of the "Great White Plague," and the increasing interest manifested by all in this fight is a source of gratification. In our campaign against the spread of this great menace, we have enlightened the masses to the necessity of improving living conditions and working surroundings, and we are teaching them hygienic measures to prevent its contraction from infected sources. As valuable as these preventive measures are, we still have the problem of caring for those whose health has been undermined by the infection. Their hope of arrestment and probable cure lies in an early diagnosis, and early institution of treatment.

Since physicians everywhere are beginning to depend more and more upon X-Ray findings to aid them in making an early diagnosis, and are learning its still greater value in allowing them to accurately follow the course and progress of the disease, I shall attempt briefly to outline the possibilities of the X-Ray and some of its limitations in pulmonary T. B. But here I wish to state emphatically that no one agent can, or should be absolutely depended upon to make a diagnosis of pulmonary T. B., and that it is only by correlating the physical findings, clinical history, and laboratory findings that we can reach a proper conclusion.

The X-Ray examination of chests is a study of shadows, and increased densities, and the ability to interpret these shadows and densities into pathology, gives us the clearest picture and conception of the changes going on in the living subject that we have at our command. And here a word in regard to laymen or technicians attempting to report on X-Ray findings will be in order. The actual interpretation should always be in the hands of trained physicians.

It is essential that each Roentgenologist

* Read as part of the symposium on Tuberculosis, at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

adopt a technique and follow it constantly. In this way he soon establishes what to him is a normal lung with normal shadows and densities, thus making the recognition of abnormalities and pathological changes much easier of detection. Personally, I make stereoscopic examinations of all cases, and have all patients, who are able, stand in the erect posture, using a high spark gap and short exposure.

While a standardized technique and good plates are essential, the Roentgenologist must have a thorough knowledge of the anatomy of the lungs, the location of the branches and ramifications of the bronchi, the position of the lobes of the lungs, and the minute cellular structure of the lung tissue. In our daily work we are constantly noting normal variations in the number of the branches of the bronchi given off, the occasional absence of the middle lobe of the right lung, and often the presence of a lingual tit in the left lung corresponding to the middle lobe of the right lung.

One of the frequent questions asked the Roentgenologist is whether early T. B. can be shown by X-Ray examination, and whether we can demonstrate the lesion as soon as or earlier than the clinician. From my own personal experience, we have had extremely few cases that the clinician could make a positive diagnosis of T. B., in which we were unable to note some pathology in the lungs upon X-Ray examination. In following and going over a number of the plates at Catawba Sanatorium, and a number of cases with Dr. Watson, at Mt. Regis Sanatorium, we have checked the Roentgen findings and, as stated above, while the X-Ray readings have been done independently of the physical findings, there have been few incidents where there was a variance.

We have, however, had cases previously examined elsewhere, and a diagnosis of T. B. made, which, with negative X-Ray findings, and atypical findings, were later found to have infected tonsils or teeth, the absorption of toxic material giving them the clinical picture of tuberculosis. Removal of the tonsils, or source of infection has resulted in a cure. And while we must ever be on the alert to make an early diagnosis of a pulmonary lesion, yet not every case with the clinical picture of an early tuberculous subject has the disease. As noted above, absorption of toxic material, hyperthyroidism, and many other causes should be looked for. In this class of cases the X-Ray is of inestimable value in helping clear up the diagnosis.

The question of activity and non-activity is one of paramount importance and, while the Roentgenologist, just as the clinician, from physical findings alone, is unable to tell if activity is present, we are able to tell if a patient has clinical tuberculosis; by this we mean if there is sufficient involvement of the lung structure to give symptoms from time to time, for where complete fibrosis or calcification has not taken place, acute exacerbations of the old infection will flare up at intervals. This classification of tuberculous patients, clinical and non-clinical tuberculosis, a classification suggested by Dr. Allison, head of the section on Roentgenology at the University of Minnesota, at the recent meeting of the American Roentgen Ray Society, appears to me to be the simplest and best classification yet suggested.

The peculiar mottling of tuberculosis, invading as it does the parenchyma of the lungs, is more or less characteristic, though other conditions may give a somewhat similar picture. Some cases of anthracosis and pneumonokoniosis, as shown by Dr. Jarvis occurring in the granite workers of Vermont, and cases of lung syphilis, reported by Dr. Watkins of Arizona are, from the Roentgen findings, practically impossible to differentiate from T. B. Metastatic malignancy of the lungs, pulmonary changes due to heart lesions, and the post-Flu, and infiltrations in and around the bronchi seen in soldiers who have been gassed, must all be considered by the Roentgenologist before making a diagnosis. While peribronchial thickening is often noted, with calcified glands and an increase in the hilum shadows present, unless we can see increased haziness or density and areas of tuberculous infiltration, or mottling out in the parenchyma of the lung, a Roentgen diagnosis of T. B. is not made.

The entire stages of tuberculosis can be shown by the X-Ray, exudation, infiltration, fibrosis, caseation, cavitation, calcification, accumulation of fluid, distortions of the thoracic viscera by pleural adhesions, and thickening of the pleura, though some instances of a thickened pleura cannot be detected, the interlobar pleurisis showing up best. The snowy

appearance, or cotton ball areas, of tuberculous mottling, with slight haziness and cloudiness surrounding these areas, upon improvement of the patient may be seen to clear up, leaving string-like shadows and, ultimately, a disappearance of the cottony effect and formation of scar tissue or calcification. The linear fans described by Dunham are often seen, and to Dunham more than anyone else we are indebted in a large measure for our present knowledge of X-Ray in pulmonary tuberculosis.

The fluoroscope and stereoscopic roentgenograms are of much value in artificial pneumothorax, showing the clinician first the condition of the non-compressed lung, the presence or absence of pleural adhesions, and the approximate amount of compression obtained.

Conclusions.

1. The X-Ray findings must be correlated with the clinical history, laboratory and physical findings.

2. A standard technique should be adopted by each Roentgenologist.

3. A thorough knowledge of the anatomy of the lungs and the various shadows cast by the pulmonary structures must be known by the roentgenologist.

4. In practically all cases, pulmonary tuberculosis can be shown by the X-Ray as early as diagnosed by physical findings, though the two must be considered together with the clinical history.

5. While activity of a given small area cannot be told, yet the presence of clinical tuberculosis can be told.

6. The pulmonary changes in T. B. give a more or less characteristic appearance in the roentgenogram.

7. The different processes of tuberculosis can be demonstrated in all their stages by the X-Ray.

8. The limitations, then, to a proper diagnosis depend, to a large extent, upon the experience of the Roentgenologist and his ability to properly interpret the shadows and densities seen on the roentgenograms.

519 *MacBain Building.*

Interpretation of Signs and Symptoms In Pulmonary Tuberculosis.*

By H. G. CARTER, M. D., Burkeville, Va.
Superintendent of Piedmont Sanatorium.

Over-zealous specialists and untrained young practitioners have in the past three years gone too far attempting to make an early diagnosis of tuberculosis. France and Canada lost thousands of men to the colors because of errors in the diagnosis of Pulmonary Tuberculosis, and this fact was heralded to the world. The same condition existed for a period in this country and the immediate result on the part of all was a tendency to refrain from making a diagnosis of Pulmonary Tuberculosis unless same could be definitely proven. This is as it should be, provided we proceed to prove or disprove in a thorough manner. Remembering for instance the existence of a 4-plus Wassermann does not necessarily explain a pathological lesion in the chest; tuberculosis and syphilis can, and often do exist in the same individual.

One is struck with the wild scramble, most marked at meetings of medical men doing tuberculosis work exclusively, to make some other diagnosis than tuberculosis—syphilis of the lungs, mycotic infections, circulatory disturbances simulating tuberculosis, foreign bodies, Graves's disease, and various other conditions. The negative side is given and the positive side is left with "Nothing but Tuberculosis." At the thirteenth annual meeting of the Southern Medical Association, Witt, in the closing discussion on his paper "Conditions That Simulate Tuberculosis," confessed: "That in his opinion 100% of cases of tuberculosis are treated for something other than tuberculosis when they first present symptoms."[1] On account of the wide prevalence of tuberculosis and the comparative rarity of some of the other lung conditions, we like to pat ourselves on the back when we find the unusual and pass it on to our contemporaries. This goes to make up a greater percentage of literature on "Other Conditions." Comparatively little is said about the diagnosis of tuberculosis. Occasionally we do see an article devoted to some fine point in diagnosis which can be of no value to the general practitioners doing 90% of the work. Muscle tone of Pottenger, corde musculaire of Halbron and

* Read by title before the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

Levy, and variation of blood pressure in lying and standing are all interesting, provided one has hours to spend on each patient; but even then they are of doubtful value. The narrowing of the isthmus of Kronig and limitation of motion at bases are, to say the least, superfluous in the majority of patients presenting themselves for diagnosis. The tuberculosis problem would be vastly improved if the general profession paid less attention to articles devoted to the "superskill" of some "highly trained" specialist and more attention to the well-known signs and symptoms and the correct interpretation of these signs and symptoms.

In making a diagnosis of early tuberculosis a thorough knowledge of a normal chest is paramount; a knowledge of abnormal signs and "horse sense" in interpreting these signs in conjunction with a line of symptoms is essential.

It is not sufficient to say, "There is a spot on the lungs." Is there an active lesion present and if possible, what is the character of this lesion? For instance, dullness on percussion means a lack of resilience in the lung substance: and even if proven to be due to tuberculosis this may be any of three conditions, viz., the infiltration of early tuberculosis, the fibrous scar of latent tuberculosis, or the fibrous deposit of chronic tuberculosis.

Whispered voice and bronchial breathing indicate that some abnormal condition is present which allows conduction of sound to the periphery of the lung from the bronchioles or from small deeply seated cavities. Bronchial and cavernous breathing, more marked examples of the same type, indicate conduction from a larger tube or cavity. But any condition that renders the lung substance more conductive to sound gives whispered voice and bronchial breathing, viz., as noted above. In feeble breathing the reverse is true, i. e., either that portion of the lung is functioning abnormally or there is some non-conducting substance between lung and instrument.

The majority of the other types of abnormal breathing are capable of wide interpretation. Granular breathing, more or less common, is supposed by some writers to be the earliest manifestation of tuberculosis due to roughening of lung tissue in the alveoli. The moist rale after cough is due to the secretion of some fluid or semi-fluid as the result of irritation or inflammation in alveoli, bronchioles, or bronchi. The size and character of rales depend on the viscidity of the fluid, the space the fluid occupies, and the distance of this area from the lung periphery.

It should be borne in mind that all these signs are due to pathology of the lung and that none are pathognomonic of tuberculosis. With slight modifications all these signs can be laid at the door of any pathological condition of the lungs. That pathology above a certain point should be considered tuberculous until disproven, and below a certain point non-tuberculous until disproven, is a good working basis, provided we conscientiously proceed to disprove this assumption. I have been disappointed several times recently by finding tubercle bacilli in clearly defined basal lesions.

That we should not wait to make a diagnosis of tuberculosis until the appearance of tubercle bacilli in the sputum is no longer even debatable. McRae and Funk, in a paper read before the American Medical Association in June, 1919, stated "That the diagnosis of advanced pulmonary tuberculosis should not be made unless tubercle bacilli were found in the sputum on at least two examinations."[2] There were at that time three patients in far advanced stages of lung disease in our sanatorium showing negative sputum and one showing a positive Wassermann. We were fortunate in getting two for autopsy.

Dr. Hopkins of Richmond reports on these cases as follows:

Case No. 386 shows small solid masses of caseous tuberculous tissue with numerous miliary tubercles scattered in other parts of the lungs.

Case No. 321 shows a few small masses of caseous tuberculosis and very numerous miliary tubercles throughout the other parts of the lungs.

The ultimate conclusion in these cases was reached by microscopic examination of the diseased tissues, a test unfortunately not obtainable until too late to be of use in diagnosis or treatment. The number reported on here is small but large enough to make any practitioner careful in labelling a far-advanced supposedly tuberculous case non-tuberculous because of negative sputum.

If no possible physical sign is pathognomo-

nic and if we are not to depend on tubercle bacilli in sputum, what constitutes a diagnosis of tuberculosis? A correct interpretation of a line of symptoms in conjunction with physical signs denoting pathology.

Pottenger classifies symptoms in three groups: first, those due to toxemia-malaise, lack of endurance, loss of strength, nervous instability, digestive disturbance, loss of weight, night sweats, rapid pulse and daily increase in temperature; second, those due to reflex causes, hoarseness, cough, chest pain and flushing of the face; third, those due to the tuberculous process *per se*—frequent colds, hemoptysis, pleurisy and sputum. He calls attention to the fact that group 1 is not pathognomonic of tuberculous toxemia and may be produced by any toxemia, but that when symptoms of toxemia are present, if they are due to active pulmonary tuberculosis, there will always be present symptoms of the reflex group or symptoms due to the tuberculous process *per se*. It is upon this combination that we rely. The reflex group is of importance only when taken in combination with group 1 or group 3. The symptoms of group 3—tuberculous bronchitis, hemorrhage, pleurisy and sputum—are fairly definite in determining the presence of tuberculosis but are usually associated with group 1 or group 2.[3]

Any group of physical signs signifying pathology of the lungs when considered with these symptoms as outlined by Pottenger warrants a diagnosis of active, pulmonary tuberculosis; on the other hand, with the most definite signs and without symptoms, a diagnosis of active disease cannot be made except by prolonged observation. L. Brown draws a distinction between clinically active disease as evidenced by symptoms and pathologically active disease as evidenced by the progression or retroprogression of physical signs.[4] That the disease can be pathologically active and clinically inactive should be borne in mind. Such cases occur in all tuberculosis sanatoria. But signs and symptoms must be considered together to arrive at exact conclusions.

To be concrete:

Given a case with altered breath sounds, pectoriloquy and dullness over an area of four fingers' breadth at an apex with no other apparent explanation, we assume that we are dealing with a tuberculous lesion and one of two conditions is present: first, an old healed scar with lung tissue replaced by fibrous tissue, or second, an active lesion in the stage of infiltration. Symptoms must be the deciding factor and symptoms of toxemia with cough, hemoptysis, prolonged pleurisy or bronchitis, make the diagnosis certain. Reflex symptoms associated with toxemia, minus group 3, are fairly definite. Reflex symptoms with cough, hemoptysis, or pleurisy render a diagnosis of active disease unless the reverse is proven. On the other hand, given a case with definite physical signs with no symptoms, and prolonged observation is necessary to make a diagnosis of a pathologically active disease. Even the moist rale after cough may not mean clinically active disease. All such cases, however, should be under observation.

Conclusion.

1. Tuberculosis is the most common explanation for lung pathology of a chronic nature.

2. While it is most commendable to find explanations other than tuberculosis for pathology of the lung, it should be borne in mind that such conditions are more or less rare.

3. A diagnosis can be made only by interpreting physical signs in the light of symptoms.

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THE LOCAL TUBERCULOSIS CLINIC.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

At this time of the year when an opportunity for raising funds for tuberculosis work is presented by the Xmas Seal Sale, our people stand face to face with the question of whether they should hold such a sale, and also how this money should be best expended after it has been obtained.

Our death records and the clinics, which the State Tuberculosis Association has been holding in many localities, show that much work and money can be advantageously expended all over the State, but the best method of conducting the fight still must be determined, and indeed should be determined before the Seal Sale is started, as the people will most properly want to know how the money they are asked to give will be expended.

* Read by title as part of the symposium on Tuberculosis at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

The money has been frequently turned in to the State Association, but the question has arisen, would it not be wiser to use a large portion of this money in the localities in which it is raised?

If the sum is small, it probably can be used best to pay the way of needy cases to a sanatorium, it costing something near $150.00 to send a case to Catawba, a smaller amount to Piedmont, and larger to Blue Ridge Sanatorium.

If the amount raised is considerably larger, a tuberculosis nurse can be gotten, or a smaller amount can be used to pay part of the salary of a Public Health nurse for looking after the tuberculosis cases in the community, which is probably the better plan in the smaller places. But, in a community of from fifteen to twenty thousand, or perhaps even of ten thousand, these two means of fighting tuberculosis will be found very incomplete though very necessary parts of the campaign, and a co-ordination and directing institution must be set up. Such an institution can be best maintained in a properly run tuberculosis dispensary, where patients can receive treatment and education, but which must have visiting nurses to find and keep in touch with the patients. Such a dispensary also furnishes the best method of picking out the proper cases to be sent to the Sanatoria, and also a means of looking out for them when they return.

Though other states have established such dispensaries very generally, Virginia has not yet fallen well into line, and it is apparently for that reason that I have been asked to discuss the Local Tuberculosis Clinic or Dispensary, one of which I have been conducting for the last fourteen years.

The first thing that would be asked is, does such a dispensary really pay? Is it of real service to the patients, to the community, and to the doctors?

To the first question I would answer that the Norfolk Clinic averages seventeen patients a day for four days in the week, through the year; that many moderately advanced, and some far advanced cases have been gotten back to work; that these old patients return to us and bring their relatives and friends if anything goes wrong with them; that many cases are being examined for the sanatoria, and frequently financially aided in getting there; that far advanced cases get nurses' service at home as well as medical advice, medicine, and sometimes food. I think you will agree that this is real service to the indigent consumptives.

Is such a dispensary of service to the community from a Public Health standpoint? This is a more difficult question to answer, and I can merely say that the dispensary is the center of the tuberculosis work in Norfolk, and that this work in turn is merely a part of the general health work, and that it is impossible to say what per cent of the improvement is due to it. But, our tuberculosis death rate has dropped from 290 in 1909, to 113 in 1919, and I feel that the tuberculosis dispensary has done its part, for not only can we point to these lives saved, but the patients and their friends are given printed and verbal instructions, and the children in these families are brought to the dispensary and examined and many infected cases are thus found, while others are kept from developing into active cases. These children are kept under observation, and in various ways improve in health. Other delicate children from the schools are examined, and all are protected from further infection, and their home conditions improved.

It is a service to the doctors in general, in that it takes care of a number of cases who are not in financial condition to pay fees, for this dispensary is not for the well-to-do, whom we instruct to go back to their own physicians. While it is not directly of financial benefit to the doctors who work there, for none of us gets a salary, I feel that we have been well repaid by the experience we have gotten, by prestige which brings pay cases to our offices, and by the opportunity presented by such a dispensary of giving real tangible service to one's state, in a way which is not too exacting.

Various questions are asked in regard to the establishment of a tuberculosis dispensary, and the first is usually, what are the prime necessities in starting such a dispensary? A conscientious doctor, and an enthusiastic tactful nurse must be obtained before anything else is done. It is impossible to say which of the two is the more important, as they must work hand-in-hand. The nurse more often gets the case to the dispensary, but unless the doctor handles

the patient properly and personally, as a sick man and not merely as a case of T. B., the patient will not long continue to come in for treatment, and the nurse will be unable to get him to follow instructions. It is likewise entirely impossible to properly handle tuberculosis cases without a nurse to visit and supervise their treatment. Having a doctor and a nurse, a dispensary can be started in two rooms with very limited equipment, which, however, must include proper record sheets or cards, and a pair of scales. We have found it advisable to furnish a certain amount of medicine, which is especially attractive to the colored patients.

Why not see the tuberculosis patients along with other medical patients? I can only answer that it does not work, as the tuberculosis patients are made to feel that they are unwelcome by the other patients, and one class or the other soon stops coming.

Will patients continue to come to a tuberculosis dispensary over long periods? We have very little trouble in this regard, though the cases must often be followed up by our nurses if they stop coming for some little while. Indeed, we often have trouble in the opposite way, as our patients will bring in friends to be treated for all sorts of complaints, from the tops of their heads to the soles of their feet. We make it a rule to examine all chest and febrile cases, and then refer to other places those cases which are definitely not tubercular. We may have to examine some of these cases a number of times before discharging them. Patients are expecteed to report on the same day of each week, and thus get to knowing each other and compare notes. It is a good plan to have good reading matter, such as *The Journal of Outdoor Life*, for them to read while waiting for the doctor to see them. We have found it advisable to have the white and colored patients on different days.

Should the dispensary be run by the Health Department, or by the Tuberculosis Society? This work is distinctly a part of the Health program of the community and, as such, should come under the Health Department, provided the Health Department can and will furnish the conscientious doctor, and the enthusiastic, tactful nurse, which are absolutely necessary. Until the Health Department is ready to do this, it may be advisable for the Tuberculosis Society to run the dispensary, as is the case in Norfolk, though we co-operate in the closest way with the Health Department, and are always willing and anxious to turn over the work; but the Norfolk Health Department so far prefers to let the work remain under the Tuberculosis Society.

Another important function of a tuberculosis dispensary is to keep in touch with cases which have come home from the sanatoria. Such cases are reported back by the sanatoria to the Health Departments and are visited by the nurses to see how they are getting along. After some time letters are sent out by the sanatoria to see how thesee ex-patients are progressing. To answer this, as well as to keep informed in regard to these patients, chest examinations should be made at stated intervals, and here once more the dispensary must be called on, though it must again co-operate with, rather than supersede the private physician. This function is most important, for these patients, returned at best as "quiescent," can be supervised, given advice as to work they can do, and if a "flare-up" should occur they can again be put on treatment, or perhaps gotten back to the sanatorium for a month or two. Such supervision saves may cases which might otherwise become incurable and finally go to their graves.

Such in brief are the functions of a city tuberculosis clinic or dispensary which, let me re-iterate, should be run only for those patients which are not financially able to pay for medical services. These patients, I am sorry to say, are many, for there is no disease that pauperizes so often as chronic, long-drawn-out consumption, which treatment calls for giving up work, along with an increased diet, two things that ordinarily do not go well together. Such patients are a terrible strain on the private doctor, for we all have learned from sad experience that the charity case is often the most exacting. Here the dispensary steps in and is ready to relieve the private doctor, and give the patient free treatment and nurses' service. It also relieves the patient from the embarrassment of calling on a doctor when there is no money ready to pay the fee. It should, therefore, always co-operate with the whole medical profession, and be ready not only to relieve them of these unprofitable cases, but also to

give them free consultations in those cases who though still able to pay small fees, are not able to pay for consultations.

A tuberculosis dispensary, let me repeat, cannot be of full value without the backing of the medical profession, who in time must consider it rather as an assistant than as a competitor, and as such be ready to lend a helping hand when occasion should arise.

Discussion of Tuberculosis Symposium.

Dr. Fred M. Hodges, Richmond:—Referring to Dr. McKinney's paper, I would like to call attention to two or three points in the X-ray findings of tuberculosis. We study pulmonary tuberculosis principally from the appearance of the hilus, the bronchial tree, and the parenchyma of the lung. On the plate, we can show up the heavy shadows around the hilus of the lung, but further than that, it is impossible at times to go.

In some instances, malignancy, syphilis, acute infection, etc., will give almost the same appearance as tuberculosis. If there are a good many calcified glands around the hilus, it is more apt to be tuberculosis. A study of the bronchial tree enables us to call the attention of the clinician to abnormalities; but we know that many changes due to acute infections may closely resemble tuberculosis, and that it is dangerous to diagnose these conditions positively from an X-ray plate.

This disease can of course involve the larynx and larger bronchi, without giving any evidence on the X-ray plate. The cases of hilus and peribronchial tuberculosis of clinical importance are largely in the minority; therefore, our chief attention is always directed toward the finding or elimination of actual pathology in the parenchyma of the lung. If the sputum is negative and physical examination shows nothing definite, and at the same time good X-ray plates show no pathology in the parenchyma of the lung, the case is not apt to be one of clinical tuberculosis.

If, on the other hand, there is any evidence of local trouble in the lungs, and the X-ray plates show pathology out in the parenchyma, we are nearly always dealing with a type of tuberculosis which is going to demand active treatment for any permanent benefit.

Dr. P. D. Lipscomb, Richmond:—Needs of dispensaries and scarcity of them. If I were to attempt to condense into one word one of the chief leading features of the dispensary, I would say that it is education. Very few people are well informed on the subject of tuberculosis, have any idea of the danger of infection, or how easily people may become infected, and they should know of the precautions necessary to prevent infection. Most dispensary patients never heard that tuberculosis is preventable and curable. The dispensary has a great work to do in the community. It is a work that is not being done by any other aggregation of individuals, so far as we know. Most dispensary patients are poor chronics and chronically poor; are interesting to physicians and, therefore, do not appeal to the average physician. Just this class of patients is taken charge of by the dispensary and by the visiting nurses who are usually associated with this sort of work. One of the chief objects of the dispensary is finding the adult tuberculous. If we can prevent tuberculosis in children, we are cutting off the disease at its source. It is very necessary to get the parents in order to find the children. The dispensary stands for a definitely organized, well defined enterprise for reaching this class of people who are just as capable of infecting you and me, and our families, as any other class of people are. Because a man is poor does not prevent his infecting others. A few of the tuberculous patients are in sanatoria; a good many are seen by private physicians, but the great mass of tuberculous individuals who are not reached by any physician, organization or influence to improve their condition constitutes the average dispensary patient.

We must not overlook one other factor of the dispensary in the educational value of the dispensary. We must remember that our physicians are to be educated in tuberculosis, and the dispensary affords opportunity for training men to get out and do this work in the city and in the country. Dr. Hatfield, at the recent meeting of the North Atlantic Tuberculosis Conference in Richmond, referred to the fact that a survey would soon be made of the medical schools in the United States that had connected with them adequate facilities for teaching their students tuberculosis. A tuberculosis disepensary and sanatorium adjacent to the medical school constitute an indispensable asset in teaching men who are going out to do tuberculosis work in the country. The place of the dispensary is primarily educational, and this fact alone justifies its existence.

Dr. R. K. Flannagan, Richmond:—If the physicians when they get together to deal with their own problems would discuss the larger purposes of the profession in relationship to the community too, public health matters and many other needs of the community would also be served. We are perfectly satisfied that everybody knows what the medical profession stands for. For goodness sake, lets stop bickering among ourselves. Wherever I go over the State I find good doctors knocking other good doctors. The little differences between doctors are so insignificant as compared to the great purpose served by the physician in the community, they have no busineses to magnify these differences. I think if we will just get together and talk not alone about professional matters, but about some of the common interests of the community which are directly related to our work, there is no question but that all of the great purposes which we have stood for from time immemorial would get a boost that no other single plan of action could give it.

Dr. W. C. Klotz, Charlottesville:—I wish to point out to those who perhaps do not know it, that Virginia has the distinction of having one of the few medical schools that provides for a real course of teaching tuberculosis. This has been brought about by the University of Virginia and the State Board of Health in connection with the new sanatorium at Charlottesville. The dispensary program which I have outlined and which may seem expensive would cost about 20 cents per head, or $1.00 per year per family, counting five to a family, and is, therefore, not only practicable, but economically sound.

Dr. E. E. Watson, Salem:—The question of early diagnosis of tuberculosis is most important. Not every case of tuberculosis has an early stage; the majority have, however. We may see a patient today and with a most careful examination find no active tuberculosis. Two weeks afterwards there may be a rupture of a tuberculous bronchial gland, and before three weeks have passed the lesion is in the advanced stage, perhaps involving one entire lung. Every case of tuberculosis has not an early stage, and I think sometimes we criticize ourselves and others for failing to make an early diagnosis, when it is no fault of ours.

The biggest question in regard to the X-ray is that of interpretation. Cases which are supposed to have advanced tuberculosis and are so diagnosed by one good X-ray man, may be turned over to Dr. McKinney or some one else, a few days later, and he may report a negative plate.

INCONSTANT BLOOD PRESSURE.*

By GARNETT NELSON, M. A., M. D., Richmond, Va.

The title of this paper has been changed from Fluctuating Blood Pressure to Inconstant Blood Pressure in an effort to find some one word that more adequately suggests its contents. At the outset, we must have a definition of "inconstant" as used herein. I am using it here to cover only those pressures that vary from high to low, or *vice versa*, or first one way and then the other in a space of time not greater than twenty-four hours, either instantaneously or in a few seconds, minutes or hours, and not by any means to include those abnormal pressures which reach their abnormalities more gradually.

Any attempt to discuss pressures from any angle entails a brief consideration of their physiology, and certain features of the circulation.

In order to comprehend pressures at all clearly, we must reduce our considerations to as simple a basis as possible, and liken the factors involved to the fundamental principles of hydraulics. These factors are: A pump, a certain fluid to be pumped, channels through which the fluid must flow, and the resistance offered to its passage by these channels.

Provided its valves are intact, the pump, that is the heart, plays a part as a factor in direct proportion to its energy. This energy or working power depends on the force of each successive beat together with the number of beats in any given time. In considering the heart's relation to high or low pressures, both most be given their share of attention, that is the force of each beat and the number of beats per minute, for it is apparent that a heart beating with a certain force fifty times a minute will not employ the energy or driving power of a heart beating seventy or eighty times a minute with the same force.

The fluid medium driven by the heart's action remains fairly constantly of the same volume, consistency, specific gravity and viscosity, at least to this extent; its viscosity, etc. are not subject to wide variations in a short period of time. The volume may, of course, change suddenly, as in severe hemorrhage or shock, in which latter condition all the blood may be in the splanchnic area. In a discussion of inconstant pressures we may therefore reject all considerations of blood as a factor except in these two conditions, in as much as the pressure variations or abnormalities due directly to other abnormalities of the blood, such as those occurring in anemias, primary or secondary, diabetes or blood retentions, as in nephritis, bring about their effects on pressure gradually and maintain them days, weeks, or months at a time, and lose these effects quite as gradually as they brought them about. The preceding paragraph relates to the consistency, viscosity and specific gravity of the blood only, and has nothing to do with the effect of toxins, internal secretions or gases borne by the blood stream. Any one or more of these may, of course, bring about pressure changes sufficiently suddenly for the word inconstant to be applicable.

The channels through which this stream must pass are: the arteries, arterioles, and capillaries, the influence of veins upon pressure being, as a rule, negligible. It is commonly taught that vascular conditions more than heart action regulate pressure. This is possibly true, but not to be emphasized so strongly in our minds as to make us underestimate the importance of the force and frequency of the heart's action. For example, given a heart beating with a fixed dynamic energy of each beat working against a fixed vascular resistance, the pressure must vary in direct proportion to the number of heart beats, rising as they increase in frequency, and falling as they decrease.

At least so far as sudden changes are concerned, the energy of heart action and the

* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

resistance in the vascular system are absolutely under the control of certain portions of the nervous system, the vagus, the sympathetic nervous system and the vasomotor nerves. There is one notable exception to this rule, namely, sudden drops in pressure due to acute dilatation of the heart muscle. If sufficiently severe, all compensatory effort on the part of the vasomotor nerves to overcome the drop in pressure due to dilatation will prove futile, and stasis of the circulation is inevitable.

Although a discussion of inconstant pressure may thus be reduced to a consideration of these two factors, heart energy and vascular tone, nevertheless certain conditions that predispose to sudden changes in pressure must be mentioned, even if briefly. These are particularly: first, arteriosclerosis; second, certain toxic conditions; third, essential hypertensions; and fourth, individual idiosyncrasies, such as, a tendency to unaccountable fainting spells, emotional crises, or other evidences of vasomotor instabilty, as blushing easily, and sensations of heat in one part of the body and cold in another.

These predisposing conditions must be mentioned for two reasons: first, because, when they have been previously recognized, sudden changes in pressure may be of diagnostic significance to the existence of one or more of these conditions. For example in arteriosclerosis involving the smaller arterioles only, the sclerosis of the cerebral arterioles may cause sudden changes in pressure in either of two ways, either by spasmodic contraction with cerebral anemia, or by sudden dilatation, transudates or true hemorrhage bringing about an increase in intracranial pressure with the usual accompanying rise in the systemic circulation.

Inconstant pressures may be divided into physiological and pathological. The physiological variations relate chiefly to: first, the time of day; second, digestion; third, altitude; fourth, mental status; fifth, respiratory variations; sixth, muscular exertion.

The Daily Variations: Records taken at frequent intervals throughout twenty-four hours show variation from the average level so striking that they can not be easily explained, the difference between morning and evening pressure being 15 or 20 mm. or more. Janeway has stated that this variation may reach 60 mm. During sleep at night the pressure is normally lowest during the early hours and rises conspicuously towards morning.

Digestion: The effect of digestion upon pressure can not be positively stated at this time, for the reason that though practically all observers report changes in pressure, some report a fall in the majority of their observations, and others a rise. However, practically all agree that the ingestion of large volumes of food, either solid or liquid, may be expected to cause a marked and even dangerous rise in pressure, especially in those in whom preexisting hypertension is known to exist, and to be a predisposing cause of sudden variation. It is a matter of frequent observation that the terminal stages of the career of a well known hypertensive patient bear a definite relation to the ingestion of a heavy meal. This fact is so well established and of so much significance that, although it will be mentioned again in this paper under the head of "Management", it is not a vain repetition to state here the following inviolable rule: "No individual with abnormally high pressure should ever eat a heavy meal for fear of a sudden and possibly fatal rise in pressure."

Altitude: The effect of altitude on the healthy and diseased is not the same. This fact is of some diagnostic significance. In the tubercular the effect of altitude is exactly the opposite to the effect upon those otherwise healthy, there being a marked tendency to a rising pressure when tubercular individuals ascend from a low to a high altitude. We know that tuberculosis is essentially a low pressure condition. With healthy individuals the pressure should fall in going from a low to a high altitude. If, therefore, an individual suspected of pulmonary tuberculosis and running a low pressure shows a tendency for his pressure to rise in passing from a low to a high altitude, this fact becomes one more link in our chain of evidence.

Mental Status: Certain mental attitudes, such as excitement, usually cause a rise in pressure. This is so common that a correct reading of an individual's pressure can not be made until unusual excitement due to the examination or other causes has been taken into consideration. The relation here is twofold for the reason that excitement causes hypertension and hypertensive cases are easily

excited, especially those who have already been told that they have high blood pressure. The room for error in these cases is of more than trifling moment.

We can never take a single reading of the pressure of an excitable individual and draw any conclusions of any real clinical value. This is true to a great extent of all single readings, but especially so in the excitable individual. On the contrary, mental states such as fear or shock, due, for example, to hearing of bad news, or witnessing the shedding of blood, may cause a sudden fall in pressure, with or without an accompanying disturbance of the heart's action of sufficient magnitude to cause syncope. This fact is habitually borne in mind by surgeons of sound judgment in preparing patients for operation, care being taken to reassure their patients as much as possible and diminish their fears of the anesthetic or the operation itself.

Respiratory Variations: Normally during respiration the pressure rises in the inspiratory phase, especially if a deep breath be taken and the breath held, and falls during expiration. In Cheyne-Stokes respiration, pressure variations are of diagnostic significance. If there is increased intracranial tension, the pressure is low during the period of apnea and high during that of dyspnea, the rise in pressure beginning just before respiration begins and falling just after summit of respiratory activity. Whereas in Cheyne-Stokes respiration without intracranial high tension the converse is true.

Muscular Exertion: It is a physiological fact that muscular exertion, such as running up a flight of stairs, causes both a rise in pressure and an acceleration of the pulse. This rise in pressure is a normal reaction, although sudden and sharp, and not entirely dependent on the pulse acceleration, as proven by the fact that they are not exactly coincident, and that the pressure's return to normal is independent of that of the pulse. This fact is the basis of Graupner's test for myocardial degeneration, which was used extensively in the army. In true myocardial degenerations, unless of too pronounced a degree, there may be an initial rise, but it is not sustained and the return towards the pressure before exercise may carry on to a level lower than before the experiment was undertaken. Pressure findings exactly opposite to the above are to be expected in the so-called "Soldier's Heart" of DaCosta in the Civil War, or "Effort Syndrome" of Lewis and numerous other writers in the late war. Here, besides various nervous phenomena (exhaustion, insomnia, headache, mental depression and irritability), tachycardia, dyspnea, palpitation, and precordial pain, we observed an arterial hypertension unduly exaggerated in response to emotion, posture, or muscular exertion.

In addition to the above mentioned physiological conditions, there is a group whose variations can for the present be only explained as "Individual Idiosyncrasies." In these individuals there is no such thing as a constant pressure. Sudden variations one way or the other occur frequently and independently of any known causative factor. It is probable, however, that some vasomotor instability, vagotonia, or sympathicitonia exists and, though for the present otherwise unrecognizable, is responsible for these pressure instabilities.

Pathological inconstant pressures fall naturally into two heads: 1, Sudden rises, and 2, Sudden falls.

Sudden rises in the pressure in the general systemic circulation that are of pathological significance are seen chiefly accompanying and bearing a definite relation to rises in intracranial pressures, and in certain toxic conditions; also during the administration of certain drugs for diagnostic purposes or for treatment. For brevity's sake, certain selected conditions only will be mentioned for illustration. It is a well-known fact that a rise in intracranial pressure, whether due to apoplexy or some other cause, is accompanied by a rise in the general pressure. The converse is equally true and of far more clinical importance. If, for example, we have already existing hypertensions of perhaps 200 mm., the cerebral arteries will remain intact under this pressure perhaps indefinitely, but will perhaps not stand a rise of 20 or 30 mm. more. If, therefore, we observe in such a case a sudden rise of 20 or 30 mm., due to any cause whatsoever, it is proper to anticipate an impending apoplexy and undertake any means at our disposal to bring about an immediate reduction to the previous level.

As an illustration of sudden rise in toxic conditions, that occurring in the toxemia of pregnancy may be mentioned. For, although,

toxemias of pregnancy of sufficient severity to cause true eclampsia or even to be fatal may occur, with no rise in pressure, this is not the rule. As a rule the pressure rises before any serious eclamptic symptoms develop. A case may be cited: Mrs. H., white, female, age 26, two weeks before term wakes up one morning with a slight headache and sends for her obstetrician, who, on taking her pressure, finds systolic 140, diastolic 85, no previous reading having been higher than 135 and 75. An hour later the readings are 155 and 90; two hours later 180 and 110. The urine is practically normal, showing only trace of albumen. Based entirely on the rapidly rising pressure, the diagnosis of impending eclampsia is made and the patient removed to the hospital. Although all possible haste in preparation and transportation was made, there were two convulsions before the patient reached the hospital. In this particular case, with rather trifling subjective symptoms and a practically negative urine, the sudden rise in pressure was pathognomonic of impending eclampsia.

As an illustration of sudden rises in pressure from drugs, Goetsch's test for hyperthyroidism may be selected. In doubtful but positive cases, this reaction is of diagnostic significance. It consists of the hypodermic adminstration of 1 c.c. of 1-1000 solution of adrenalin; if positive the pressure rises from 10 to 30 mm. in from 3 to 5 minutes, and remains at approximately this level for from one-half to one hour, returning gradually to its previous level.

For examples of sudden falls in pressure, the falls accompanying hemorrhage, perforation of the bowel, shock and acute dilatation of the heart muscle may be used. Any extensive hemorrhage, except within the cranium, will be accompanied by a sudden fall in pressure, with occasionally a fleeting rise. This is true also of perforation of the bowel, there being here, too, possibly a fleeting rise from peritoneal irritation. In typhoid fever, therefore, if for any reason hemorrhage or perforation is suspected, a sudden fall in pressure of 10 or 15 mm. or more will confirm our opinion that one or the other exists. The diagnostic significance of the fall accompanying shock is too well known for further mention, for it seems to be established that the seriousness of shock is in direct proportion to the fall in pressure, and measures undertaken to overcome shock will be of no avail unless the pressure can be raised to approximately its level at the incidence of shock.

Acute dilatations of the heart muscle: No more graphic illustration of the clinical significance of sudden falls in pressure is possible than that accompanying dilatations, nor is there anything in medicine more gratifying than seeing a pressure restored as the dilated, acutely decompensating nuscle becomes able to function. For example, a lobar pneumonia, previously doing well, experiences a dilatation with a systolic fall from 110 mm. to 75 or 80, becomes cyanosed, cold, and death seems impending. Under proper treatment, venesection for example, the heart muscle is again enabled to employ the proper energy to maintain the circulation, the pressure rises and the patient perhaps makes an uneventful recovery. To the recognition of the significance of the sudden fall in pressure alone and of itself may be attributed the final result.

The Management of Inconstant Pressures.

This, of course, depends on recognizing the causative factors involved, as well as the mechanical significance of sudden rises or falls in pressure. The exact point of high or low pressure at which life is possible has never been ascertained, so far as I know. I have seen systolic pressures over 300 and below 80. But the significance of sudden rises or falls in pressure is well understood.

The measures at our disposal for regulating these sudden variations and restoring previous level are rest, diet, heat, purgatives, hydrotherapy, certain drugs with selective action on the vasomotors, and venesection. Rest is indicated in either event, usually absolute, in bed, mental as well as physical.

Purgatives are indicated in high pressure variations only, except possibly in those low pressure cases where the fall is due to an overwhelming intoxication in intestinal stasis, or blood retentions.

Hydrotherapy, in the form of hot packs, aids elimination, in sudden rises due to toxic conditions. Sufficient heat, preferably dry however, is indicated also in sudden falls as in hemorrhage and shock.

Drugs. Certain drugs are available in reducing pressure on account of their specific action and certain others are valuable, though chiefly for their secondary effects. The drugs commonly used for their specific action are amyl nitrite, nitroglycerine, potassium nitrite, sodium nitrite, erythrol tetranitrate and diuretin. For brevity's sake, their dosage and methods of administration are omitted. But the very important fact must be mentioned with reference to the nitrites that in some individuals one of the group may be practically inert, whereas another may be very potent. A case is cited in which sodium nitrite had no effect whatever, nitroglycerine caused a reduction of 50 mm. and erythrol tetranitrate a rapid fall of 110 mm., the patient going into collapse; in another case nitroglycerine and erythrol tetranitrate had very little effect, while a reduction of 65 mm. followed the use of sodium nitrite. The chief drugs that reduce pressure through effects other than upon the vessels themselves are the purgatives, veratrum viride, aconite, thyroid extract, the salicylates, anesthetics and morphine. The drugs to be relied upon to raise pressure are suprarenalin, pituitary extract, strophanthus, digitalis, caffeine, oxygen and atropin, at least in falls of pressure accompanied by edema of the lungs.

Venesection is mentioned last, not because of its trifling importance but for the sake of emphasis. Venesection is useful under certain conditions to regulate either sudden rises in pressure or sudden falls. In the sudden rise of the pre-apoplectic state or the pre-eclamptic, free venesection may prevent either disaster. Conversely, in the sudden fall of acute cardiac dilatation, free venesection, as in the case mentioned above, may be our only means of saving life.

1009 *West Franklin Street.*

BIOLOGY AND MODERN MEDICINE.*

By CHARLES MINOR BLACKFORD, M. D., Staunton, Va.

The modern science of biology, the science of living organisms, has been a direct outcome of the researches of medical men since the Renaissance. Before that period of great intellectual activity, it had been taken for granted that life in the lower organisms arose spontaneously; that maggots, for instance, originated in decomposing meat and that flies came into being in piles of rotten filth, but, as observation became more accurate, and especially after the microscope was applied to the study of the lower forms of organisms, the idea of spontaneous generation gradually lost ground. At last William Harvey, the great discoverer of the circulation of the blood became convinced that there is no life which has not sprung from antecedent life and voiced this opinion in the famous dictum, "Omne vivum ex vivo" or "ex ovo":—all life from life or from an egg.

This view of the source of life encountered many and bitter opponents, but it remained merely an academic question until within the present generation. When Koch, Pasteur and Lister announced that living organisms are responsible for many of the diseases of both animals and plants and that if these organisms be prevented from gaining lodgment, or be killed after they gain access to the victim, the diseases which they cause will not occur or will be checked if they have begun, the battle over the origin of these organisms began to assume the gravest importance. It is useless to review this battle before this audience; it is sufficient to say that the advocates of spontaneous generation were utterly routed and that the basis on which much of modern medicine and surgery rests is the belief that the micro-organisms causing diseases are incapable of spontaneously coming into being. All of modern hygiene rests on this basis, and the success which has followed the efforts made within the past quarter of a century to banish endemic and epidemic diseases would not have been attained were it possible for the organisms causing such diseases to arise spontaneously.

This statement applies only to the organisms which are sufficiently advanced to be recognizable as such. We have good reason to think that the simplest form of animal or vegetable organisms are far more complex in structure than are inorganic salts. An amoeba or a bacterium is the result of a long line of evolution from the colloidal compound in which the first signs of vital energy may be found, and when compared with such compounds, these single celled organisms are as far in advance of them as man is ahead of the amoeba or bacterium. These single celled organisms are capable of reproducing their kind, and so far as our present knowledge goes, they come into being

* Read at regular meeting of Augusta County Medical Association, October 6, 1920.

only as products of antecedent cells.

The chemical basis of all living cells is a very complex chemical body known as protein. A recent analysis of the protein in our red blood corpuscles gives it the formula $C_{680}H_{960}N_{154}FeO_{17}$, and this is by no means the only form in which it exists. Molecules of protein are arranged in some manner at present unknown to form the still more complex compound, protoplasm, which Professor Huxley called "The Physical Basis of Life." We are familiar with the groups of compounds known as polymeric, in which the same elements are combined in the same percentages and yet which vary most markedly in their properties, and so it is not surprising that so complex a body as protein should have polymeric forms which differ widely. As Professor W. B. Hardy says, as quoted by Macnamara*.

"All proteids are not the same proteids; there are proteids of men, others of beasts, others of fishes and others of birds. The properties of a complex substance like protein are defined not so much by the kind of atoms or number of elements of which it is built up, as by the structural arrangement and the motion of those atoms in space. He gives as an example the molecules of two chemical substances, benzonitrile and phenylisocyanide, each of these being composed of seven atoms of carbon, five of hydrogen and one of nitrogen. There is a small difference in the arrangement of these atoms; this difference so alters the properties of the two substances that one is a harmless fluid with an aromatic smell; the other is an offensive poison. It is evident from the complex nature of the elements of a proteid that its molecules must be of far larger dimensions than the molecules of inorganic substances: but the larger the size the greater the probability of variation of its elements in detail by the action upon them of various forms of energy. As we have elsewhere stated, it is, we hold, in consequence of the unique structural arrangement and motion of the elements which constitute protoplasm, that it acts as a transformer of chemical and other kinds of energy into phenomena characteristic of living matter."

A question which at once arises is "What do we mean by living matter and how can we tell living from non-living matter?" At first glance this seems to be extremely simple, but a slight examination will show that it is by no means as simple as it might be. A living organism supplied with nutriment, tends to increase in size while keeping a fixed shape, and this was long thought to be characteristic of life, but a crystal will do the same. If a tiny nucleus be immersed in a super-saturated solution of copper sulphate, for instance, the salt will leave the solution and will build up a body of such definite shape that its form can be used for identification as can the shape of a fish. Furthermore, if a crystal immersed in such a nutrient fluid be broken or wounded, the injured part will be repaired by a deposit of fresh material even more perfectly than will an injury inflicted on a living organism. There are many phenomena exhibited by crystalline substances which simulate those of life so closely as to give us pause in drawing any hard and fast lines between them.

This is neither the time nor the place to discuss the origin of life or to compare the evidence which leads us to think on the one hand that life originated once for all and that all living beings have a lineage stretching back through almost infinite time, or, on the other, to believe that the origin of life is a purely chemical process which is going on all the time and that new masses of colloidal matter possessing the power of motion and assimilation—in other words, vital characteristics—are constantly being formed. Be this as it may, living beings, as the biologist and the physician regard them, have gotten far beyond the stage of potential life, and the simplest forms are known as cells, tiny masses of protoplasm which can move in response to stimuli, or, apparently, in accordance with what resembles the will power of higher organisms, and which are capable of producing other cells more or less like themselves. These cells were first recognized in the blood of the frog by the Dutch investigator Swammerdam, in 1658, and in human blood by his equally famous countryman, Leeuwenhoek, in 1673; these discoveries following the wave of blood investigation which came as a result of William Harvey's discovery of the circulation in 1618. Nearly a century later Hewson found that the blood contained numbers of colorless corpuscles which he called "Leucocytes", (1770) which were capable of

* N. C. Macnamara, F. R. S. of England and of Ireland; Fellow of the Calcutta University, in "Organic Evolution: Darwinian and DeVriesian." Annual Report of the Smithsonian Institution for 1911; page 364.

spontaneous movements; of passing through the walls of the blood vessels and "wandering" through the body by the extension and retraction of processes from the interior of the cells; of taking into themselves small particles of foreign bodies which are either assimilated or are extruded from the cell, and, finally, are capable of reproducing themselves by dividing into two or more cells, apparently identical with the originals. These white blood cells are strikingly like the uni-celled amœbae,—so strikingly, in fact, that they are called amœboid cells.

The fact that all of the tissues of animals and plants arise from the development of ova or of seeds has been known for centuries, and Empedocles, nearly five hundred years before Christ, taught some of the details of embryology which are still believed to be true. About 1840, Schwann showed that the organs of the bodies of animals are composed of cells which vary in structure, appearance and composition according to the function of the organs of which they are parts, and in 1856, Rudolph Virchow published his classic work, "Cellular Pathology", in which he showed that diseases affected these cells, producing recognizable changes in them, and that the effects of diseases were due to the inability of diseased cells to functionate properly. Since that time the work of vast numbers of students has shown that the cells making up the highly differentiated tissues of the body are all derived from the uniform cells formed by the fission of the ovum, and that while the embryo is thus developing from a simple structure into an extremely complex one, it so closely parallels the evolution of the higher organisms that Ernst Haeckel has laid down as a dogma his famous saying that "Each individual in the course of its development, epitomizes the history of its race."

The fact that the apparently uniform cells, formed by the fission of the ovum are capable of developing into such widely divergent bodies as brain cells and bone cells, gave great force to the claim that species and genera of organism can and do undergo great changes, but though this power was recognized, the causes underlying it remained unknown. One fact became well established however, which is that before a cell can reproduce itself, a stimulus of some sort must be applied to it, though, in some instances, more than one reproduction may be brought about by a single stimulus. This is called the alternation of generation, and some of the organisms in which this occurs are of medical importance. The tape worm, the cysticercus cellulosae of measly pork, and several other parasitic organisms, are capable of this form of reproduction.

The stimulus to reproduction which is most common is that supplied by another cell which generally comes from another organism. Among the unicellular organisms this is called conjugation, and the two individuals coalesce into one which then begins to subdivide. In the case of the amœba and other one-celled beings, the division of the mother cell results in daughter cells which are precisely like the parent, but if the impregnated cell be an ovum of a higher organism, the process goes much further. Although at first the daughter cells are exactly alike, so far as the means of research at the present time will permit us to see, they soon begin to gather into layers from which are developed tissues differing markedly from one another. When this development is complete, the cells forming the nervous system are readily distinguishable from those of other tissues; muscle cells, bone cells, epithelial cells, and so on, are readily recognized, and a complete science known as histology has been built on the study of the structure of animal and vegetable tissues. It has been found that the several organs are composed of a framework of connective tissue, and that this framework acts as a skeleton on which rest the more delicate cells that perform the function of the organ. For instance, the thyroid gland consists of such a framework filled with masses of cells of a peculiar kind which can be washed out, leaving the gland merely a spongy mass of connective tissue. Certain animals, the sponge for instance, are constructed on the same plan. The sponge has a silicious skeleton which is the sponge of commerce, and on this rests a slimy mass of cells which compose the animal proper. Between the cells forming the skeleton or framework and the active cells which constitute the functionating part of the gland or the tissues of the animal or plant, there is a great difference, but as both sets of cells arose from the reproduction of cells which were apparently identical, it is obvious that the difference came about in the process of development, though as

yet we have been unable to define it or to determine the causes which produce it.

The power of reproduction which cells possess differs so widely as to throw cells into two great groups:—those which only reproduce cells like themselves and those whose offspring differ from the parent. The great majority of the cells composing the bodies of the higher organisms belong to the first class. Thus, epithelial cells will produce epithelial cells only; muscle cells will produce new muscle cells and so on, but in most organisms there are certain cells which have the power of producing offspring which will develop into new individuals composed of a great variety of cells. These are of two varities, the male or spermatozoa and the female or ova, and in all of the higher organisms they are produced by well defined organs, known as gonads. Among the lower organisms this is not the case, as was shown in certain sponges by H. V. Wilson*, Professor of Zoology in the University of North Carolina. His experiments were carried out at the Beaufort, N. C. Laboratory of the United States Bureau of Fisheries during the summers of 1907 and 1908, and his material was what is known as the red oyster sponge, a species which grows abundantly in Beaufort harbor. It first encrusts stones, piles, oyster shells, and so on, but later forms lobes and becomes a complexly branched body. The skeleton consists of a horny basal plate from which spring spicules of a fibrous silicious nature, interlacing and forming hollow spaces which are filled with soft, red cells. Wilson cut the sponge tissue into bits about one-fourth of an inch in diameter and put these bits into bags of fine bolting cloth. By immersing the bags in bowls of sea water and squeezing them with his fingers, he forced the dissociated cells out into the water. He says:—

"The cells streaming through the cloth present the appearance of red clouds. They quickly settle down to the bottom of the dish like a fine sediment. * *

* * "If a drop of the sediment so obtained be examined at once on a slide with a high power, the preparation is seen to consist of myriads of separate cells together with a few spicules. There is a certain resemblance to a blood preparation, which at once suggests itself, sea water occupying the place of the plasma. * * * Fusion of the granulated cells begins immediately and in a few minutes' time most of them have united to form small conglomerate masses which at the surface display both blunt and elongated pseudopodia. * * * The small conglomerate masses first formed early begin to fuse with one another while they still continue to incorporate outlying cells. The space under the cover glass thus soon becomes occupied with numerous small balls or masses. As the sequel shows, these masses continue to unite and eventually restore and regenerate the sponge. They may be spoken of, therefore, as masses of regenerative tissue, and the observations already described make it plain that they are composed chiefly of the spheroidal granular cells or amœbocytes, but that other cells enter into their composition."

Although this is interesting, the fact that the cells conjugate seems to indicate a sort of sexual fertilization; a form of reproduction which is common, and these experiments do not have the possibilities which those carried out by Dr. Jacques Loeb at the Rockefeller Institute for Medical Research possess. By slightly raising the alkalinity of sea water by addition of certain bases, among them common sodium hydrate, he found that the eggs of the Californian sea urchin could be fertilized by the sperm of various species of star fishes, although this did not occur in normal sea water. This indicated that the stimulus to fission and production was largely chemical and not wholly biological, and he then tried to produce fertilization by purely chemical means. He found that by putting the eggs of star fishes into sea water of increased salinity and osmotic pressure for about two hours and then putting them into normal sea water, many of the eggs segmented and produced normal larvae, although usually none of these eggs will develop without the access of a spermatozoon.* This seems to show that the action of the living spermatozoon is chemical only, and Loeb then tried a long series of experiments to determine a better method of producing artificial or chemical parthenogenesis. This method† is as follows:—

* Wilson, H. V. Development of Sponges from Disassociated Tissue Cells. Bureau of Fisheries (U. S.) Document 750. Issued June 16, 1911.

* Loeb, J. Artificial Parthenogenesis and Fertilization. Chicago, 1913.

† Loeb, J. The Organism as a Whole from a Physicochemical Viewpoint. N. Y., 1916.

"The eggs are put for from two to four minutes into 50 c.c. sea water containing a certain amount of N/10 butyric acid. Ten or fifteen minutes later the eggs are put into hypertonic sea water (50 c.c. sea water plus 8 c.c. 2½ m. NaCl, or Ringer solution or cane sugar) in which they remain at 15 C. from thirty-five to sixty minutes in the case of *Purpuratus* (a Californian sea urchin), and from 17½ to 22½ minutes in the case of Arbacia (an Atlantic sea urchin) at Wood's Hole. If the eggs are then transferred to normal sea water they will develop. * * By this method it is possible to imitate the activating action of the living spermatozoon upon the egg in every detail and eggs treated in this way will develop in large numbers into perfectly normal larvae. We shall see later that they can also be raised to the adult state."

Growth and reproduction are the most characteristic phenomena of what is called life; that form of energy which is displayed in animals and plants and which distinguishes them from mineral and metallic substances and from what we at present call chemical compounds. The bringing about of these phenomena by chemical and physical means seems to be the opening of great fields of knowlelge, and all that can be learned in relation thereto is worthy of the closest attention. Having shown that the germ-cells of organisms can be made to develop by purely chemical stimuli, the next step is to see what may be done with organs or organic tissues when removed from the bodies in which they normally exist.

As yet we do not know how to produce living matter, and every experiment has needed living cells as a base. We do not know how to prevent death, for, so far as our present knowledge goes, every organism must die after a greater or less time, though we do not know why this fate should be inevitable. It is, however, a matter of more than mere interest to know that we can prolong the life of organs, of tissues or of cells after they have been removed from the organism, and that such parts can be made to lead for a longer or shorter time an individual and independent life. The organ on which these experiments were first tried and which has been most thoroughly investigated, is the heart. As far back as 1887, Renard and Love reported a human heart which continued to beat spontaneously and completely for 25 minutes after a legal decapitation, and by massage of the heart, its beating has been restored after it had been arrested for forty minutes (Rehn). The heart of a dog has been known to beat 96 hours after death; that of a tortoise for eight days, and Burrows (1911) observed the heart of an embryo chick to beat for three days after its removal.* By irrigation of the heart, and especially of the coronary vessels, this period may be much prolonged.

Other cases of the reviving of suspended animation have been reported, but though these seem marvellous, they are no more so than the awakening of plant life after the winter sleep or the revival of animals after hibernation. We know nothing of these suspensions of vitality except that they exist, and it is only their familiarity that makes them commonplace, but the work done by Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, has opened the doors to new means of investigation which have vast possibilities. This work has shown the possibility of maintaining the life of tissues and organs after being removed from the body and has demonstrated the fact that such removed tissues and organs may be caused to grow *in vitreo* and to build up new parts of highly specialized tissues. In 1910, Drs. Alexis Carrel and Montrose T. Burrows† published the results of some experiments conducted by them on dogs, cats and an adult frog. These consisted of extirpating small fragments of tissues of an animal, inoculating them aseptically into a plasmatic medium taken from the same animal, and sealing the materials in hollow glass slides. The slides were placed in an incubator and kept at a constant temperature of 37° C., and the microscope was also placed in a special thermostat which was kept at the same temperature. The medium was inoculated with bits of thyroid, suprarenal, kidney, cartilage, bone marrow, etc., and the results showed that each of these several tissues grew and reproduced new tissue of its kind. The most important results were those from the kidney. Of this experiment the authors say:

"But very much more important were the results of the cultivation of the kidney. Two plasmatic media were inoculated with small

* Legendre, R. Translated from La Nature, Paris, of November 2, 1912, and published in the Annual Report of the Smithsonian Institution for 1912.

† Journal of the American Medical Association, October 15, 1910.

fragments of a kidney of a young cat. Twelve hours later, fusiform cells were protruding from the tissue. After twenty-four hours a great many cells had invaded the plasma all about the renal tissue. * * * On the fifth day one of the cultures was fixed and stained with haematoxylin. We saw many karyokinetic figures in the cells which had proliferated through the plasma. A tube had begun to grow from the tissue into the medium. The cells showed a conditon of great activity.

"The other culture was allowed to live to the sixth day and an exceedingly active growth of the cells took place. In the morning, we observed a few tubes growing from the renal substance into the plasma. In the evening they were much longer and curved at their blind ends. At the beginning of the seventh day, the culture was fixed and stained. Around the renal tissue a very large number of fusiform and polygonal cells had formed. A few tubes, composed of a lumen limited by epithelium-like cells, had passed from the fragment of the kidney for a distance into the plasmatic medium. They had the appearance of renal tubules.

"These experiments demonstrate that adult tissues grow very easily outside of the body. Tissues like cartilage, and even like renal substance, can be caused to develop in something like normal manner under entirely new conditions."

Dr. Carrel has carried these experiments to a stage of high perfection. At first he found that the duration of life in these cultures of tissues was very brief, and that after about fifteen days at the longest, the rate of growth began to decrease until it stopped. Following this stoppage same death and disintegration. He found that this could be prevented, as this senility and death was only a result of the exhaustion of the nutrient medium and the accumulation of waste products, and, by an improved technique, he was able to rejuvenate his cultures. He cut out the bit of coagulated plasma containing the tissue and the cells springing from it, and after washing in Ringer's solution (Sodium Chloride, 0.7 p.c., Potassium Chloride, 0.3 p.c., Calcium Chloride, 0.025 p.c.) for several minutes, the culture was placed in a solution of three parts of normal plasma and two parts of distilled water. When the senility began to show itself again, this process was repeated with fresh plasma solution, and, as Dr. Carrel says:* "These results demonstrate that rejuvenation of the cultures of tissues is possible. They show also that, under the conditions and within the limits of the experiments, senility and death are not necessary, but merely a contingent phenomenon."

The experiments were carried on with both normal and pathological tissues. Among the most interesting were those on the artificial culture of chicken sarcoma in the plasma of the fowl bearing the tumor and in that of a normal animal. In the first case the growth was very active; the new cells covering from fifteen to twenty times the original area in the course of twenty-four hours. The growth in plasma derived from a normal animal was active, though not so extensive as in the first case, while in the plasma from another sarcomatous animal, the growth was slight if it occurred at all. From this he deduced that the plasma of a sarcomatous animal acquires the property of inhibiting the growth of a sarcoma taken from another animal. At once the nature of the inhibiting substances was sought. Are these substances secreted by the tumor or are they antitoxines produced by the organism as a reaction against the tumor? By adding a little sarcomatous extract to the normal serum in which the sarcoma cultures were growing, the growth was markedly accelerated which showed that the inhibiting power does not lie in any secretion of the tumor, but must be produced by the organism as a defense against the malignancy of the tumor.† The fact that the growth *in vitreo* may be stimulated or checked gives rise to the hope that some means may be found of checking the growth of malignant tumors in the bodies of living animals.

It is impossible to go more fully into the experiments which have been carried on regarding the nature of growth and of degeneration. When Dr. Carrel found that a tissue which will not grow in the serum of an old chicken will be stimulated to active development by the addition to the serum of an extract from a nine day fœtal chick, he seems to be on the verge of discovering the long sought elixir of life. Were our present ignorance of vital chemistry less profound, we might determine the agents which stimulate or inhibit the devel-

* Carrel, A. Journal of the American Medical Association, November 11, 1911.

† Carrel, A. Journal of the American Medical Association, January 7, 1911.

opment of tissues and organs in the body, and by slightly altering the composition of the blood serum, produce wonderful therapeutic results. A broken bone now requires some forty odd days to reunite; but were we able to so alter the composition of the serum as to stir the osteogenetic cells to their greatest activity, this time might be reduced to some four or five days. As stated above, the first tissues artificially cultivated, lived for only about a fortnight, but last year Dr. Ebeling, of the Rockefeller Institute for Medical Research, described† a strain of connective tissue which he had been cultivating for seven years and which gave no signs of senility. It may be that future research may show that senility in the human being is preventable. At present this may seem impossible, but many, if not most, of those about me can remember the time when suppuration was looked on as a necessary step in the healing of a wound, and when the advocates of asepsis and antisepsis, with their claims that inflammation and suppuration were needless and were harmful, were looked on as idealistic enthusiasts. Truly no man knows what tomorrow may bring forth, and patient, skilful and persistent delving into the secrets of Nature may bring even greater results in the future than they have done in the past. About 1835 it was seriously proposed that the Patent Office be abolished, because there was nothing more to be invented. We of today see that the surface of invention had barely been scratched, and that most of the conveniences and necessities of our time had not then been imagined. It is beyond the power of any man to say what can and what cannot be learned, and it is more than possible that the researches into biology made during the past two decades, may give to medicine a new birth from which will spring a science and an art of which we now have no conception.

THE VENEREAL DISEASE PROBLEM.*

By W. D. KENDIG, M. D., Kenbridge, Va.

Venereal diseases have existed since the earliest times. Moses in the Book of Leviticus gives a description of gonorrhea. Hippocrates and Celsus described both gonorrhea and venereal ulcer. Gonorrhea was so prevalent among the Jewish tribes that Moses issued certain rules for the guidance of the people to prevent is spread. Records show that in 1493 syphilis was well known in Europe. Hunter, in 1794, was the first to study this disease definitely. Prior to 1900, certain scientific data was recorded in their bearing on the reduction of syphilis and gonorrhea; but no effective health measures were instituted. From 1900 to 1912 much work along this line was accomplished and new facts of the greatest importance were discovered. Along medical lines, much was accomplished with gonorrhea, regarding its ravages, communicability, and treatment. Recent advances in medical science have given us new weapons with which to attack the venereal diseases, and we are now able to approach the problem from a different angle.

The beginning of the new campaign dates from the brilliant discovery of the causative organism by Schaudinn and Hoffman in 1905. The following year brought the ingenious specific reaction devised by Wassermann, whereby we are able to determine the existence of syphilitic infection and, to cap it all, came the introduction of salvarsan by Ehrlich in 1910. The great value of these additions to medicine is universally recognized for shortening the period of infectivity and they improve the chances of ultimate recovery. The routine use of the Wassermann reaction has disclosed some startling revelations. Dr. McLester upon examination of 300 patients found that 56 or 18.8 per cent gave a positive Wassermann reaction.

We know venereal diseases are communicable infections due to known organisms. Their methods of transmission are known, and a practical laboratory and clinical technique has been worked out for diagnosing each of them. They find their chief opportunities for dissemination in the sex relations of infected with non-infected individuals. They are widely prevalent all over the world, and are not limited to any age, race or sex. They are largely, but not exclusively, transmitted through the promiscuous sex relations defined as prostitution, and condemned by society as harmful alike to the health, morals and social progress of a people.

Before this audience it is superfluous to discuss the fearful ravages caused by gonorrhea

† Ebeling, Albert H. Journal of Experimental Medicine, December 1, 1919.

* Read before the Southside Virginia Medical Association at its meeting December 9, 1919, as part of Subject for General Discussion, "Venereal Disease Problem and Control."

throughout the civilized world. You know the relation of syphilis to locomotor ataxia, to general paresis and to diseases of the heart and circulatory system. You know of the countless miscarriages due to syphilis and of the many innocent victims of prenatal infection. You also know the large number of women annually subjected to mutilating operations because of gonorrheal infection.

Interesting figures as to the prevalence of gonorrhea are found in the report of the Surgeon General of the army of 1918. The proportion of the recruits of draft age (21 to 31) who were found to have gonorrhea was between two and three per cent. Colored troops showed two and a half times as much as white troops. The examination of drafted men for the army revealed that five men came into the army with a venereal disease to every one that developed it after he was in the army, so you see that venereal diseases are not to be attacked as a war epidemic only, but as a peace problem also. Examination at mobilization camps showed that 5.4 per cent of the second million drafted men had some form of syphilis, gonorrhea, or chancroid. Virginia had 6.91 per cent, and Florida the highest, 15.6 per cent, while Vermont had the lowest 1.30 per cent.

At the beginning of the war in all the departments of medicine, except that of Genito-Urinary diseases, there was a fairly well defined system which governed these departments, and they were simply transferred into the army and navy as workable organizations. The one mostly needed, however, was that department of medicine that dealt with Genito-Urinary diseases, and such a department did not seem to be organized, so that it would take care of the great problem, with the greatly increased number of infected persons out of all proportion to other diseases.

Preventive medicine has been forcibly brought to the front since the end of the war. There has been a marked definite turning point in public health activities, and we are facing a time of reconstruction in the methods of health administration. During the war the dominant thought underlying this activity in health matters, was to conserve the man power, for anything that would keep the men healthy would largely accomplish the result.

General Gorgas said early in the war: "Venereal diseases present the most serious communicable disease problem of the war. The army loses more days of service from its men on account of venereal diseases than from any other cause. During the twelve months ending September, 1918, there were 170,000 cases of venereal diseases in our army (in the United States). This means a loss of approximately two and a quarter million training days in a year. Add this to the cost of medical care and hospital equipment, and the loss of possible relapse later and you commence to see what venereal diseases cost a nation at war. During the period from September 2, 1917, to May 31, 1918, the annual rate per thousand for our troops in the United States was 102.3; the rate from all other communicable diseases 29.4 per cent—pneumonia, scarlet fever, typhoid and paratyphoid (measles not included)."

The Surgeon General met the emergency and it is our duty, as physicians to do likewise since it is estimated that the number of cases of venereal diseases are more than have ever been known since the sixteenth century. Believing that it is the physician's duty to humanity, I would like especially to try to arouse the profession to the importance of some methods of control for syphilis and gonorrhea, the greatest health problem of today. As a peril to the family, as an injury to the health, vitality and physical progress of the race, and as a danger to the public health, venereal diseases are regarded as the greatest of modern plagues, and their prophylaxis the most pressing and important problems of preventive medicine that confront us at the present day. It seems to me the importance of venereal diseases and the change in public sentiment towards their control has been the most marked of any disease brought into the limelight since the war, for, strange to say, the public generally have been reluctant to deal frankly and forcibly with the venereal disease problem. Both the profession and the public must face the facts and cooperate in a complete program of medical and preventive measures as increased modes of communication and transportation, brought on largely by the war conditions, have extended the venereal possibility.

We have come to the conclusion that we are years behind in our efforts to control syphilis. If we had spent one-fifth of the money and energy in dealing with syphilis in its early

stages, that we are now spending in its later stages, we should have accomplished results infinitely greater. There are two problems facing any one who attempts to interest the State in the treatment of syphilis in its early stages. In the first place, it is necessary to know something about the number of cases infected and their distribution: in other words, the object is statistical. If this were the only or main object, we should have little ground for insisting on reporting cases of venereal diseases, but such is not the case. Far more important than the statistical knowledge thus gained is the means for individualizing our efforts for securing an early and accurate diagnosis. The modern diagnosis of syphilis in the early primary stage, if possible before the organism has spread to the lymphatics adjacent to the primary lesion, but at all events before the Wassermann reaction has become positive, is far more reaching in its medical and social significance than the finding of the tubercle bacillus in early tuberculosis. It is more significant, not because it points to a dubious prospect, but to instant and effective action. The institution of radical treatment of syphilis at this stage accomplishes, what a syphilologist would term, the abortive or radical cure of the disease. According to Dr. J. B. Stokes, of Minneapolis, "The first injection of salvarsan puts an immediate end to the infectivity of the patient. Within 8 to 12 hours there are no longer any organisms obtainable from the lesions. Repeated injections of salvarsan with mercury for a suitable time, seldom less than a year, seem to accomplish a sterilization of the body." Upon the first 4 to 10 days of the primary lesion while syphilis is still a practically local infection, diagnosis should concentrate its every resource and treatment, for never again in the history of the disease for the patient and his fellowmen will there be such another moment. Thus far as a profession we have not had a just conception of the vital importance of early diagnosis in syphilis. It has taken this war to teach us and the world that modern knowledge of this disease has never been taught in medical schools.

The science of eugenics assumes special importance in preventive medicine. Eugenics has been defined as "the science of being well born." Can any one say that a person with a syphilitic parent is well born? A little pamphlet gotten out by the U. S. Public Health Service has this to say: "Sex links the man who marries to the past and to the future in a great chain of human beings. His only means of affecting the racial stock of his country is by his physical fitness. By one false step he may infect the stock, topple over the hopes of fathers and mothers reaching back for thousands of years,—generations, patiently building up sound bodies and minds—and blight the lives of distinct individuals of generations to come. The spark of life is a sacred trust to be received reverently and transmitted undimmed to future generations. Sex uncontrolled is disaster and wreck. Sex in control for men means Power."

One of the best protections we have against the disease of the mind and body is that which is inherited from our forefathers. The whole problem of improving the human stock, not only from the medical viewpoint, but from the broader sociological standpoint, is based upon the breeding of the fit and the elimination of the unfit. The success of eugenics depends almost entirely upon our knowledge of heredity, and the great part syphilis plays in heredity is too well known to you to be necessary for me to discuss. Suffice it to say, that something ought to be done to regulate the marriage of unfit, diseased people.

I cannot do better than close in the words of Dr. J. H. Landis, "Until the time arrives when man shall be the master of its sexual instinct instead of its slave, our duty as sanitarians is as binding to protect him from the evil consequences of his slavery as it is to safeguard his food and water supply; our moral responsibility to protect his wife and children as great as if he exposed them to the plague.

"While diverse opinions paralyzed efforts directed to the sane solution of this problem, degeneracy is gaining a firmer hold on future generations. While we question one another's honesty of purpose, when our opinions differ as to what shall be done, the pit to our descendants is being made deeper and wider. What shall we do? Act or theorize? Do the best we can with man as he is, or dream of ideal conditions, impossible of attaining on this side of the grave?

"Shall we build more hospitals, more insane asylums, more asylums for the blind, and more

penal institutions in which to house the victims of this trouble, while the seeds of moral suasion are being sown, cultivated, and brought to full fruition in the dim future, or shall we apply the same sanitary principles which have stayed the plague, eliminated yellow fever, stopped the spread of cholera, and rendered smallpox less deadly than measles?"

THE CONTROL OF VENEREAL DISEASES*.

By E. L. KENDIG, M. D., Victoria, Va.

The recent World War has opened the eyes of the thinking people of this country to the necessity of some practicable control of venereal diseases. It has been known heretofore to the medical profession, to students of social hygiene, and to the public, in a vague way, that a certain percentage of our population was infected with venereal diseases, but, until revealed by this war, it was impossible to ascertain even approximately to what extent. Reports[1] available from the War department show that 5.04% of all men drafted into the army of the United States from civil life during the recent war, were found to be infected with some form of venereal disease when they arrived at camp. This serves as a valuable guide in reckoning the prevalence of these diseases among men in civil life of draft age. The secret and personal nature of these diseases make control a difficult matter.

The United States Army has had a systematic and rigid method of control for venereal diseases for a number of years. By this method[2] venereal diseases in the army have been reduced from an average of 170 per thousand each year in 1911 to 86 per thousand in 1913. In the enlistment[3] of men for the larger army during this war, it was discovered that five times as many men per thousand had contracted venereal diseases before enlistment in civil life as had contracted it in the army. More men were incapacitated in the army from venereal diseases than from any other cause. The problem of control in civil life is, for obvious reasons, not so easy as in the army. In order to protect the soldiers from infection in the community around the encampments, in order to fight this infection in the civilians, who from time to time would be called into the army, and in order to increase the efficiency of the whole people, the Government mapped out a nationwide campaign for the control of venereal diseases. The remarkable success of this campaign, in so short a time, is still fresh in our minds. The war is over. It is not necessary now to fight Venereal Diseases in order to help lick Germany, but it is necessary to continue this fight on these diseases in order to save our people from the consequences.

A medical examiner[4] in the army, after seeing with his own eyes the hundreds of diseased young soldiers, said "Our ignorance and failure in handling the problem of venereal diseases constitute the greatest crime of American civilization. This is the clearest lesson of the war".

The United States Public Health Service, by authority of the Chamberlain-Kahn act, recently passed by Congress, is continuing this fight on venereal diseases. Out of experience obtained in the Army and Navy, out of the experience obtained from the nationwide civilian campaign for the benefit of the army during the war, and by the advice of men who are especially able to help, the Public Health Service has mapped out a definite program of attack. Although I shall mention the different parts of this program in a general way, principally I desire to bring to our attention the physicians' art of this undertaking. I speak not from the standpoint of an expert or one especially learned in these matters, but I speak from the standpoint of the general practitioner. No one knows the problems and opportunities of a profession like the members of that profession, and I believe that great benefits could be derived in handling the medical measures of this campaign, if the active physicians of the country would help solve some of its problems from their experience.

I shall not discuss the effect of religious or moral influence in the control of these diseases. I will leave that to others. It is a fact, however, that in the past religious and moral influences have not been sufficient to control the spread of venereal diseases. Neither in the past have these influences been able to control crimes or other transgressions of the law. Punitive laws are enacted and rules for the conduct of the public are made to prevent such

* Read before the Southside Virginia Medical Society December, 9, 1919, as part of subject for general Discussion, "Venereal Disease Problem and Control."

transgressions of the law. In the same way some practicable measures, other than morals or religion must be employed also to help bring about the control of venereal diseases.

The United States Public Health Service has divided the campaign into a number of heads, including social, educational, legislative and medical measures.

The Social Measures include mainly the suppression of liquor and prostitutes. Prostitution flourishes under the influence of liquor and venereal diseases follow prostitution. On examination[5] of 731 prostitutes in San Francisco, Stevens found 147 cases of gonorrhea, 243 cases of sypyhilis and 96 cases of infection of both gonorrhea and syphilis. Segregation and medical examination of prostitutes does not successfully prevent the spread of venereal infection. In many cases, the examiner will not have the time necessary to determine cases of mild or chronic infection. In others the prostitute will contract the disease just after the examination and spread it to scores before another examination. And again, the fact that a red light house has been segregated and prostitutes in it have been examined makes the frequenters of that house less careful.

The Educational Measures employed for giving information to the public on venereal diseases include teaching the children at home, courses in schools and colleges, co-operation of the various social and religious organizations, distribution of literature, posting of suitable sign posters, use of moving pictures, and the employment of public speakers.

Suitable Legislative Enactments, are absolutely necessary in the control of these diseases. Even when the public is fully educated as to the nature, method of transmission, and evil effects of venereal diseases, laws properly enforced will be necessary to control the wilful and ignorant. It is not necessary here to enumerate or discuss all the pertinent laws to control such diseases. The United States Public Health Service[6] has published a bulletin dealing comprehensively with this subject. I will, however, call your attention to certain of these laws which concern the physician. A majority of the states have passed a law which requires each physician to report every case of venereal disease coming to him for treatment. This is very important in this campaign as it enables the Health Department to follow up those cases not reported as cured, and thereby prevent a further spread of the disease. It is also very important that this law be so enforced that it will not keep persons infected from consulting a physician. Some states require a report by number, others by name. Indiana requires the physician to report by name on a card which, with all other data, is returned to the physician upon receipt of notice that patient has been discharged as cured. Another problem is to keep those infected from going to quacks or druggists for treatment. A great many of the states have virtually put the quack out of business by prohibiting advertisements of cure for venereal diseases, lost manhood, etc. More than two-thirds of the druggists in the United States are voluntarily co-operating with the Government by referring all cases coming to them for treatment to the physician or clinic, and at the same time reporting the case to the Board of Health. Some method requiring this co-operation from all druggists should be adopted.

I believe in a more perfect unity of action between the National and State Health Departments. Health conditions in one State may directly affect those of another. The problem of health and prevention of disease is not county wide, not state wide, but it is Nation wide, and even more.

The Medical Program is the one which more directly concerns the physician. It includes prophylaxis, treatment of the disease and the relation of the physician to the whole problem.

The prophylaxis[7] employed in the army consists mainly of an injection of a 2% protargol or a 10% argyrol solution and an application of a 33% calomel ointment. The sooner it is used after exposure the better. It is not advised after twelve hours. This has been very effective in the army. Whether it can be used as advantageously as a routine in private practice, in the control of this disease, is an open question.

In this short paper it is impossible to go into the details of the different methods of treatment for venereal diseases. The standard treatment[8] employed by the army is concisely given in a little booklet published for the benefit of civilian physicians by the United States Public Health Service. The key note of this

book is that you should be sure your patient is well before he is discharged.

In sypyhilis an early diagnosis is desirable. The earlier the diagnosis, the better the prospects of a cure and the quicker the patient is rendered non-contagious and fit to work. But it is absolutely essential that a positive diagnosis is made before treatment is begun. During the chancre stage a positive diagnosis may be made by examining under the microscope the lymph from this lesion for the spirochæte. After the chancre has been in evidence about ten days, the Wassermann test can be used and repeated until a diagnosis has been definitely made. If diagnosis of syphilis is made, treatment should be begun at once. This treatment should be continued until repeated Wassermanns show a positive cure. Syphilitic infection may occur in chancroid, and for this reason every chancroid should be examined for spirochætes. I need not mention the methods of treating syphilis. The treatment of gonorrhea is a field which requires at the hand of the physician ability, tact and resourcefulness. The different forms, stages and complications of this disease require close observation of the progress of the disease and a full co-operation of the patient. This treatment, also, is too well known to be repeated here. The two glass test should be used with each examination to determine the location and character of the gonorrheal infection. A microscopic examination[9] of the discharges to determine the presence of gonorrheal and other pus producing organisms is strongly advised, but this, in my opinion, as a routine in general practice, is not necessary, except in cases of difficult diagnosis. The treatment of gonorrhea in women, except in prostitutes, requires extraordinary tact. A great many women have gonorrhea who do not know the nature of the disease or its consequences. It is very important in gonorrhea also to know your patient is well before he or she is discharged.

A physicain's work brings him into contact with several classes of these patients, which can be roughly divided into (1) prisoners, inmates of public institutions and prostitutes, (2) clinical patients; (3) private patients.

The first class include what is usually called the principal carriers of venereal disease. In the treatment of the prostitute, it is very important that she be cured before discharged. Every prisoner and inmate of public institutions should be examined for venereal disease, and those infected should be put on the proper treatment and this kept up until cured.

In the clinic for venereal disease we will see the pauper, the ignorant and those who do not care. These clinics as a rule have a follow-up system, by means of which the patients are in a large percentage of cases kept under treatment until cured. I believe it would be practicable to establish such a clinic convenient to every section of the comtry. This could be handled by local physicians on certain days and hours in the week and be supported mainly by the State or National Government. As done in some states, arsphenamine could be distributed free through these clinics. McLaughlin[10] advises that the clinic charge a low fee to each patient, which will help defray the expenses of service, and at the same time make the patient feel that he is getting treatment of value. At first glance, it might seem that the establishment of such a clinic would injure the work of the physicians in the community, but, when the class of such clinic patients is considered and the fact is brought to mind, that, before this campaign was begun, less than half of the venereal cases were treated by physicians, it is obvious that such is not the case.

To his private venereal patients the physician should be of great benefit. The physician in these cases is usually the only one who can render the service. In most cases the physician is the sole confidant of the patient. An intelligent, sympathetic and simple talk on venereal disease at this time will do much towards keeping that patient under treatment until cured, and at the same time educate and enlighten him in these matters, which will in in the future make this patient a valuable citizen in helping in this campaign in the control of venereal diseases.

Every physician should have on hand the literature on this subject issued by the Health Departments, and should miss no opportunity to give a copy to each such patient. This literature will be read at this time because, on account of his illness, he is intensely interested in such matters.

Dr. Bowdoin[11] sums up our part in this work as follows: "I would remind you that the private soldier who carried the musket and did the fighting is the boy who won the war.

Generalship is necessary, strategy is essential, but an army composed of only Generals, Colonels, and Majors would be a military joke and fit only for an organization of veterans. Someone must stand in the trench; someone must go over the top; someone, other than officers, must win the battle, and so it is in the fight against this greatest enemy of modern civilization, venereal diseases. The State and Federal Government may outline the plan, local authorities may establish clinics and distribute literature, but until the family physician throws himself into this fight, until he takes his scientific knowledge into the homes of his patients and places it at their disposal for the protection of the sons and daughters of his clients, the fight cannot be won."

I wish to emphasize the following points of interest to the physician in this campaign.

1. A co-operation between the physician, the authorities in charge of the campaign and the public.

2. A co-operation between the druggists and the authorities, preventing drug store treatment and directing those applying for such treatment to go to physicians or clinics so that they may be cured.

3. Prohibiting advertisement for cure of venereal diseases, lost manhood, etc. by quacks and makers of patent medicine.

4. A more perfect unity between the National and State Health authorities so that the health work may be more economically and effectively carried out, and the physician will be guided in his work by one department only.

5. Convenient public clinics for the treatment of venereal diseases in the poor and ignorant.

6. Examination of all prisoners and inmates of public institutions to determine presence of venereal disease and treatment of those infected until cured.

7. A report of each and every case of venereal disease by the physician to the authorities.

8. Education and instruction of each patient concerning the facts of venereal diseases.

9. Distribution of literature on these diseases to all patients under treatment.

10. Repeated tests both during progress and after apparent cure to determine presence of infection.

11. Continuous treatment of each patient until the tests prove a cure.

12. A report to the authorities of every patient who discontinues treatment until discharged as free from venereal infection.

13. And last but not least, the part the physician must play in his community in this campaign. He must become a leader of the intelligent men and women of this country in stamping out this dread disease.

In closing this paper, I can do no better than use the words of Dr. Pierce, of the U. S. P. H. S.[12]: "Other national campaigns against tuberculosis, trachoma or hookworm disease all have had social and economic complications of their own. But in the case of syphilis and gonorrhea there is added to these social and economic aspects of the problem the handicap of age-long tradition. We face a very slowly yielding prejudice against even discussion of these matters. We face the difficulty of directing human will and instincts. Such a demand on the physician and on every intelligent member of society, would seem appalling were the possibilities not testified to by remarkable demonstration of what has been done. Preventive medicine is one of the contributions to the world of the medical profession. To the medical profession the world in this after war day, turns in confidence for the solution of its deepest problems."

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IDIOPATHIC AND TRAUMATIC ILEUS.*

By A. G. PAYNE, M. D., Greenville, Miss.

Ileus! What is it? Who knows, and how accurately can anyone diagnose it? It is variously defined by all writers, one saying it is a complex of symptoms characterized by pain, vomiting, constipation and meteorism, and subdividing it into dynamic, adynamic and mechanical. Another says the contents of the alimentary canal may become arrested in their passage through the bowel, owing either to me-

* Read before the Mississippi State Medical Association, May, 1920.

chanical impediment, or to some imperfection in the action of the nervous and muscular apparatus; still another states: "We have been accustomed to define it as a malady characterized by certain cardinal symptoms, but it is better to call this disease a serious disturbance of the intestinal motor function, in view of the fact that one or more of the cardinal symptoms are not always present early in the malady."

Then, we have the so-called pseudoileus which is so often seen following abdominal operation and which varies considerably in different instances. This condition is to be clearly differentiated from true obstruction, although it must be admitted that it may run the entire gamut from simple distention to paralytic ileus itself. It is exceedingly common, and in its simplest form follows the rough handling, prolonged exposure and undue cooling of the abdominal viscera. There are individuals so constituted nervously as to seem susceptible to it.

But be it infectious meteorism, pseudoileus or true ileus, the subject is one of the most worrying with which the physician, both internist and surgeon, has to deal, and being one in which possibly so little can be done remedial, is why so little is said about it. We, as internists and surgeons, are always ready to advocate some treatment, laud or promulgate some operation that we can recommend, where some disease or condition can be relieved, or condition made more comfortable by such measure, but we all fear and dread that condition in which we can be merely onlookers with fear and dread. With either of the conditions of idiopathic or traumatic ileus, we have one that always and immediately puts the doctor who recognizes it in a state of fright and confusion. It is the time being, so to speak, when all doctors are internists; that is, we immediately run to medicine in our endeavor to arrest the meteorism that is present, whether it be mild or severe in beginning,— whether it be the mild over-eating type, or the severe food poisoning type, or traumatic ileus following work in the abdomen.

In most cases of the severe type, be they idiopathic or traumatic, the sentinel on duty, the trusted doctor, never asleep under such conditions, but all the time scared, begins the call to arms. When he has finished calling in his comrades, he has assembled calomel, castor oil, Epsom salts and croton oil. Then comes up from the rear saline, turpentine, and asafœtida enemata. These not vanquishing the dreaded, stalwart enemy, we call on the new and more up-to-date soldiers, pituitary extract and eserine, and these latter are usually no more valliant than the first.

Then is when the surf changes, as it were, and the surgeon and internist change to surgery as the only hope, and you see the operating room gotten ready, and staff rapidly assembled; the patient, in a great many cases, too weak to need much anæsthesia, is opened up. One of several conditions may be present: a paresis from too long distention of bowel, or ileus in which possiby a stomach lavage with rest of that organ would have been of more avail; an intussusception, a volvulus, an obstructive appendicitis, a gallstone obstructing the bowel, a malignant bowel, an embolism of the mesentery, a gauze pad, a drainage tube, occlusion of gut, or one of many other conditions. If a tentative diagnosis of a surgical condition had been made earlier, and so much needless, useless and harmful medication had not been given, and so many needless, worrying and unnecessary measures used, and prompt surgical intervention instituted, it would have been much better for patient, family and friends, as well as the doctors.

It must be admitted, however, that there are always two sides to this, as to any other question, and non-operative treatment will always have its advocates and, in a great many cases, it will have to be treated non-operative. This treatment should consist of morphine, enema, no purgative, no food, washing stomach and colon; these measures should be used only long enough to satisfy the physician or surgeon that they are of no avail and, before too much time is wasted, and the patient too much weakened and too much damage has been done, we should open the abdomen and empty the distended bowel, relieve the obstruction and treat the strangulated intestine.

Prompt surgical treatment is that which is essential for intestinal obstruction; the more acute the obstruction, the more urgent the operation. Today, one should not labor this point. It should not be accepted only by surgeons, but by the whole profession, yet its acceptance is a matter, in too many instances, of

too much time. There should never be unnecessary delay after the diagnosis has been made.

Traumatic ileus has been, and is, the one condition that makes me never feel like telling a patient, family and friends, "There is no danger," when the query is put, "Doctor, is there any danger in the operation proposed?" For sometimes, with a condition which seems as though there would be no trouble, especially in a neurotic patient, operation will be followed by nausea, vomiting, restlessness, sleeplessness, constipation and bad facies, which immediately get the surgeon worried. He will begin to wonder what has happened, what is the deed of omission, or commission, and then will start the role of medicinal remedies, finally winding up, as Deaver puts it, in opening up the Pandora box of troubles which, too many times, gives no clue to the cause, and many more times, gives no relief. On account of delay this condition, in my experience, comes when least expected and has no connection with bad cases in which we might easily have expected trouble of any kind. So, as I see and take it, this is an ileus, non-obstructive in type and similar in nature to an acute dilatation of the stomach.

In my hands, this condition has been encountered more with the nervous individuals, the ones who have worried over their condition, and the final outcome, at times saying to the family and me, they "never expected to survive the operation", than it has ever occurred in those cases of severe conditions, both before and following operation, in which I might have thought I would have almost any disaster.

In my opinion, the one great causative factor in ileus is the abdominal drain and, in my opinion, other than for its use in acute, fulminating appendicitis, or where the bowel is punctured, or where intra-abdominal hemorrahage cannot be checked, other than gauze pack, gall duct, or gall-bladder surgery, it has no place in the abdomen other than to cause morbidity or mortality.

Next, in point of importance as a causative factor of ileus, is the preoperative purge; and next is the prone position following operation; the patient who has the least preoperative purgation and is turned from side to side and out of bed in from two to four days is the one who has less trouble following operation, during convalescence and always thereafter.

Conclusions.

The following minimize that bugbear to surgeons, post-operative adhesions and ileus:—

1. Less preoperative purgation;

The least retraction of wound and handling possible of abdominal vescera;

Less drainage used;

Less prone position;

Getting patient up early.

2. Reflex inhibition, toxic paresis and the mechanical effect of meteorism and kinking are variable factors, often all combining to cause obstruction, and it is well for the surgeon not to be too much influenced by the dynamic as opposed to the mechanical causes for such obstruction, as sometimes, quite in the late stages, when it might seem all hope by any means would be futile, life may yet be saved by giving mechanical relief and so enabling nature's powers to deal with the toxemia.

3. Over-distention of bowel causes paralysis. This is an important condition since it enters into so many cases of obstruction. Until a local meteorism develops, the prospect for surgical treatment is generally favorable, but when once a general meteorism is established, all cases are dangerous, and if distention continues long, the paralysis will not be relieved. At the same time, it must be remembered that distention paralysis is of a temporary nature and usually disappears at once, if the bowel is emptied.

4. In any case, seemingly passing the stage of pseudoileus, be it dynamic or obstructive in character, do not procrastinate until the patient is too toxic and too weak to withstand opening up the abdomen, and see and do what is best under the circumstances for the individual case; drainage in the hopeless meteoric and paralytic cases will do no harm and, in the cases of mechanical obstructive type, it is the only chance for a recovery and should never be denied anyone.

5. There are two conditions which may be present in any case of obstruction when it comes under observation and which, if present, should receive immediate surgical attention,—collapse and fecal vomiting. We can be

well assured that if strangulation is released, an intussusception is reduced, or a volvulus untwisted before the tissues have been hopelessly damaged, the patient will have uneventful recovery. It is only when an improper delay has been allowed that danger is encountered.

THE PUBLIC AND ITS MEDICAL SOCIETY.*

By D. L. HARRELL, M. D., Suffolk, Va.

I would indeed be glad if I could convey in words my kind feeling and high appreciation for the honor you conferred on me at your last meeting. The presidency of a real, alive, active, progressive society as this, where harmony and co-operation prevail, carries with it an honor that any physician would justly be proud of, and I assure you that my gratitude will be expressed in clean and untiring efforts to do everything possible for the advance and uplift of the society's interest.

Feeling that there is a weak link between the medical profession and the public, I will speak briefly with reference to the "Public and its Medical Society."

Throughout the past ages, and even more today, medical science has held, and now holds, a prominent place in the estimation of mankind, and justly so, because it was ordained by God. "Inasmuch as ye have done it unto one of the least of these, my brethren, ye have done it unto me". It seems that no vocation in life is more worthy and carries a higher seal of our Creator's approval, than that of the doctor who devotes life unreservedly to administering unto the sick, the wounded, the careworn, the feeble, the maimed, the blind and to whatever type, kind, and manner of physical ill the body is subject, save one, and that is the vocation of those who minister to the spiritual man. Many times the doctor, the nurse, and all others who are a part of this force in life can, and do, dominate and influence that is commendable unto our Maker. So the Southside Virginia Medical Society is with you, without a feeling of apology. It possesses a sense of security and confidence, because its principles are based upon a foundation stronger than Gibraltar. You may ask what has a Medical Society to do with this or any other community? What is it worth to me? Listen—this is where we meet to renew our friendship and to know each other better; where the two-edged sword of envy, hatred, animosity, contempt and self satisfaction is blunted. Yes! annihilated.

Medical men are human and are subject to some of the many objectionable traits and characteristics that possess the human race. So we come in close contact with each other, and the result is, the good, high and holy that we possess stand out and crowd out the little, measly, contemptible things that demoralize and destroy the efficiency of one and all. We unite our efforts as one, harmoniously and sincerely, to study and discuss the great questions that confront us as preventors and healers of disease,—how to prevent and cure tuberculosis, smallpox, typhoid fever, and every other condition that comes to you to claim your loved ones through invalidism, old age, or death prematurely. Surely, the motive that prompts such high and commendable service is above self. Its for *you* and *your* off spring, for the common good of mankind—wherever and whoever he may be. If this be true, the medical profession and the Medical Society, which is the organization that combines our efforts into one, is no small factor in your community for the common good of all, for your good individually. These are basic facts and principles that must represent and support the progress of your community, which progress is absolutely dependent on your co-operation. The society is the crucible in which the dross, the worthless ideas and opinions are destroyed; it is the sieve that retains for your use and benefaction the things that are worth while. If you are to derive and enjoy what is provided for you, you must co-operate with us with an equal sincerity and honesty of purpose. Many times this may be difficult to do, because the laity can not understand all about electricity or life. Why does the acorn planted in suitable soil make the sturdy oak? I can't give the reason, neither can you—so it is necessary at times for the public to accept certain definite, basic principles, established by the medical science, when we are unable to explain in words, in five minutes' time, what it has taken us a life time to learn. Sanitation and quarantine are momentous questions. They have made wonderful progress year by year

* President's address before the Southside Virginia Medical Association, December 1919.

until the states finally created the various boards of health as a result of what was done by the medical profession in the societies. No doubt too little consideration has been given to public meetings, such as this, giving the laity privilege to become educated up to seeing the facts and reasons for more and more rigid laws, and to become more familiar with the prevention of diseases. The assets of any community, state or nation, must be dependent upon the enforcement of its laws of sanitation, quarantine and whatever contributes to the health and life of its constituents, and yet it is amazing how bitterly these things are sometimes fought.

When your health officer calls and orders a pool of stagnant water on your premises abolished, or the tin cans in the back yard that contain stagnant water removed, don't raise objection and require argument equal to a post-graduate course in hygiene and sanitation. No health officer or law is "putting one over on you" when such demands are made. The stagnant pool of water may possibly be the starting point for a severe epidemic of typhoid fever and, if it does, it is sure to tax some to the full limit, financially, physically, mentally, and finally, to destroy the life of many good citizens and loved ones. The mosquitos that breed in an innocent can of water will not only annoy you, when you stop for a rest, but the very kind that carry the malarial germs from one person to another may be thriving there to make you and yours totally unfit for duty and pleasure. Having served as health officer for several years, I have some knowledge of how the laity, a few years ago, regarded orders from such authority. Many times when a man's privilege or purse was affected, the lash of the law alone could affect a reasonable response to the demands of the law. Selfishness and defiance seemed to overcome the conscience.

For instance, your eighteen year old daughter is suddenly taken sick in the night, she is nauseated, and has some diarrhoea with moderate abdominal pain. The doctor is called. By the time he arrives, faint and mild nervous symptoms develop, with some fever. During his visit he notices a tendency to stupor out of proportion to all other symptoms and he questions along every line to find a clue leading to the dagnosis, but he gets nothing definite. The doctor leaves to return in two hours, and he now finds a condition that alarms him, because of the stupor, and profound nervous symptoms. A thorough examination fails to show any eruption on body or sore throat; no definite meningeal symptoms. This case has not had sufficient time to develop so the attending physician can't say really what the disease is but, deep down in his soul, he is thinking of malignant scarlet fever, and calls the health officer in consultation. They decide it is best to quarantine as a safety precaution, and many people in such a measure, will raise a most emphatic objection to the quarantine because the daughter has simply eaten a little something that has made her feverish and a little delirious. So there follows a heated argument and all the family and both the doctors get mad, and the devil that's in both simply runs riot. The quarantine is established, so far as the law is concerned. They change doctors, and within eighteen or twenty hours the patient is dead, and no one knows what caused the death. Four days later a younger child is taken suddenly ill, in the same way, and the case pursues a similar course, and has only a suspicion of eruption, with a thoroughly red throat, but dies before a definite diagnosis is made. The third child falls sick, has a mild type of the disease and develops all the symptoms in a manner that is satisfying to all, even the family that malignant scarlet fever is the diagnosis. Two deaths in one family in six days mellows a highly tempered soul and brings one to reason. By this time, the family that did everything possible towards discounting and preventing the quarantine, would do everything to prevent any other person from having this deadly type of scarlet fever. A few of the neighbors, who were also loud and bold in their condemnation of the quarantine, and the doctors who instigated it, who also slipped in by the law and wilfully carried the deadly poison to their own loved ones, would give the world if they could command it, for the privilege of following the precautionary measures that were justly provided. Such an attitude is malicious and is a stench in the nostrils of civilized mankind, and I believe that the transmission of disease and death in such circumstances will be looked upon by "Our Maker" with the same scrutiny and justice as the fellow who commits murder. If a mistake must be made for the good of humanity, make

it in favor of what is best and just to your fellow man.

Turn the page and let us consider another type of case. Your child comes from school and hands you a small slip of paper, stating that the physician provided by the state has examined the throats of the pupils and found that Mary has diseased tonsils and advised you to see your physician regarding treatment. Not knowing how very important this matter is, you delay and delay. Finally, the doctor is consulted at a time he has an emergency call, but takes enough time to look in the mouth and does not examine the throat. Perhaps Mary does not want any doctor looking down her throat any way, so the child gets a prescription and the parent may or may not ask about having the tonsils removed. That makes little difference, because the doctor is not going to refer any child to a specialist for removal of tonsils until he knows the tonsils are diseased or apparently so. His advice could only be to wait. The patient waits, and from time to time has attacks of tonsillitis, finally a severe attack. Later Mary looks badly, the complexion is sallow, appetite is disturbed, she is languid, pains develop in joints. These grow in severity and are followed by redness and swelling. Dr. X. is called, and the case is readily diagnosed as inflammatory rheumatism. This diagnosis satisfies the family, neighbors and friends because everybody knows the doctor is treating the child for the right disease. Finally, the pain, swelling and redness disappear and Mary returns to school, but never looks and seems quite well. Later, mother sees that Mary can't play like the other children; she has shortness of breath on exertion, her feet and legs are swollen, she looks badly, and this time doctor A, who has recently had a serious experience in a similar case is called. He immediately begins to question the family about every illness Mary ever had and he is told of the small slip of paper from the teacher, of the consultation with doctor number 1, of the rheumatism treatment by doctor X, and, on examination, he finds that dear little Mary has heart disease, the type that destroys the valves. In spite of all the doctors and treatment known, Mary grows rapidly worse, until she answers the call that mother and father cannot answer for her. This is indeed a sad but true picture, and it is more sad, when you know as recent medicine knows, that Mary should not have died, should not have had rheumatism, should not have been sick at all, save from the trivial effects of having her tonsils removed when the little slip of paper was received from the teacher.

The first case cited, placed the responsibility on the family; not so in this case, because if modern medical teaching and belief is true, the doctors 1 and X must answer before the same scrutinizing and just God. It is not necessary to continue citing cases, for I believe you can see *your* medical society has a duty to perform, that it owes you something, and that *we* must open new avenues and methods of imparting to you such information as will help you to prevent many of the incurable diseases that are day after day claiming the flower of the land. You should know that nearly all tonsils that look rather large after 10 or 15 years of age, are diseased and should be removed, that every person who has had one attack of appendicitis should have the appendix removed, that every abscessed tooth should be removed, that pus, wherever found in a human being, should be elminated so as to prevent rheumatism, organic heart disease, Bright's disease, high blood pressure and many other incurable conditions, to say nothing of indigestion, neuralgia, etc. But few problems confront the American people today that are more significant or important than those of teaching people how to keep well, and a public session devoted to educational training at each meeting of the Southside, appeals to me as one good way to continue what is already being done. Let us be truly American, not only geographically, but live it as individuals.

RENAL LITHIASIS.*

By A. I. DODSON, M. D., Richmond Va.
Associate Surgeon and Urologist, St. Elizabeth's Hospital.

Renal calculi occupy probably the most prominent place in urological surgery, not only because of the great distress caused the patient, but also because by modern methods of diagnosis and treatment the surgeon is usually able to relieve the condition promptly and with minimum danger. The first renal calculus was removed from the living subject in 1880 by Henry Morris, of England. In 1896 McIntyre, of Glasgow, first demonstrated stones in the

*Read before the Richmond Urological Society, June 1920.

kidney by radiograph. The progress of radiographic technic, aided by the cystoscope, urine analyses and tests of renal function, has placed the diagnosis on an almost definite basis, while modern surgical technic insures a minimum risk.

The mode of calculus formation has been widely discussed and many possible reasons have been given. Sir Wm. Osler believed calculi to be produced by an excess of a sparingly soluble ingredient such as cystin or xanthin, but more frequently by the presence of uric acid in a highly acid urine which favors its deposition. He further called attention to the suggestion of Ord that albumin, mucus, blood and epithelial shreds may be the starting point of stone. Ebstein was of the same opinion, thinking that the organic or albuminous supporting frame work found in calculi was the deposit on which crystallization took place, and that without a nucleus of organic materials no stone formation would occur. The application of new layers of crystals is thought to occur in a similar manner to rock candy crystallizing on a string. This, of course, involves the idea of an over-saturation of the urine with a crystallizable substance or some change causing it to be unable to hold the normal amount in solution.

Urine contains in addition to crystalloidal substances certain colloids, including under normal condition, especially the pigments, and under pathological conditions, such products of inflammation as fibrin. Colloidal substances are held in very fine suspension and therefore present an enormous surface area. The crystalloids which are in true solution are believed by Schade to be absorbed to some extent by the colloid surface, resulting in a zone of concentration around each particle. When the crystalloid goes out of solution it will, of course, carry colloids with it; hence, the frame work found in urinary concretions. Urinary calculi are not simple conglomerations of crystals. If they were, we would be able to dissolve them by merely changing the reaction of the urine according to the nature of the calculus, for crystallization is a reversible process.

Some colloids are also reversible, precipitating in acid and dissolving in alkaline media; but this is not true of fibrin. Schade was able to produce with calcium salts and fibrinogen masses of salts having the same structural arrangement as calculi. He, therefore, believes that some inflammatory exudation takes part in their formation.

The presence of some definite predisposing factor is evident by the rather large percentage of recurrence noted. Cabot reports a series of 66 operations with 47 per cent. recurrences, while 88 re-examinations at the Mayo Clinic revealed 14.7 per cent. of reformation, most frequently at the site of the previous stone.

The most typical clinical evidence of stone is an attack of severe pain, sudden in onset, radiating from the kidney region downward along the urinary tract into the leg or genitalia. When this symptom is accompanied by hematuria, usually only the X-ray is required to complete the diagnosis and point out the exact location of the stone. Such attacks only occur when the stone has reached the ureter or blocked the pelvis; therefore, much less prominent symptoms, as slight dull pain in the back, increased by exercise, lumbar tenderness, and albuminuria, should lead us to make a thorough X-ray and cystoscopic examination. Even a very large and destructive calculus may be present with no symptoms other than a small amount of albumin in the urine, and may only be found at autopsy.

In the diagnosis of stone, all the ills of the kidney and many of other organs have to be considered. Oxaluria may be the cause of both hematuria and radiating pain and confusion has arisen between the passage of gall stones and renal calculi. Spondylitis often causes severe lumbar pain and frequently radiating pain which may be confused with that due to the passage of stone. Renal infarcts, hematogenous infection of the kidney, and pyonephritis will give symptoms strongly suggestive of stone. Seminal vesiculitis will frequently cause reflex pain in the region of the kidney with blood in the urine from congestion of the trigone and posterior urethra. The appendix may also be a source of confusion. When it is acutely inflamed and adherent to the bladder, causing urgency and frequency of urination, it greatly resembles a renal attack. On the other hand, attacks of kidney colic may be accompanied by abdominal pain

and flatulence directing attention to the intestinal tract.

Before attempting any operations, it is highly desirable not only to determine the presence of stone, but also its location. The X-ray gives the most positive evidence and has contributed more than any other one thing to the differentiation of nephrolithiasis from other diseases of the kidney and adjacent structures. Operation on roentgenographic evidence alone, however, is not good surgery. The surgeon should know the functional capacity of each kidney, which is only possible by cystoscopy. The pyelogram, also made possible by the cystoscope, is of great value in determining the location of a stone and it defines the location of the kidney. Dr. William J. Mayo reports two cases in which the right kidney was exposed when the shadow was caused by gall stones.

In the treatment we must choose between nephrolithectomy, nephrectomy, and watchful waiting. Removal of the stone with drainage of the kidney pelvis when infected is the operation of choice. Frequently large branching stones, multiple stones, or infection cause such destruction of the kidney that nephrectomy is advisable. If a very small stone in the pelvis is not causing a great deal of discomfort, delay is justifiable in the hope that it will be passed. Operation might also be deferred when a small stone fixed in the cortex gives no symptoms nor disturbance of function, because of the possible mutilation incident to its removal.

In bilateral calculi, when there is good renal function and the patient is otherwise in good condition, both kidneys may be operated upon at one time. When this is not advisable and there is more pain, hemorrhage, or toxic absorption from infection in one kidney, it should be attacked first. Otherwise, it is considered advisable to operate first upon the kidney having the greatest function. When this is done, frequently a moderately impaired organ will so regain its function that its diseased fellow may be operated upon and removed if advisable.

Any stone in the kidney probably will cause trouble sooner or later, as it predisposes the kidney to infection and loss of function, in addition to the destruction caused by its growth. Braasch noted nephrolithiasis to be third in order of the five most common causes of perinephritic abscess.

Early operation will prevent much kidney destruction as well as much suffering and general physical disability, while the present high standard of technic insures almost a negligible mortality. The Mayos report 484 consecutive operations, with 6 deaths.

The following case operated upon at St. Elizabeth's Hospital recently presents several points of interest:

Mrs. J. N. H. entered St. Elizabeth's Hospital, January 15, 1920, complaining of pain in the right side. For the past four years she had noticed occasional slight pains in the lumbar region and, at times, a little pain and frequency of urination. For several months she had gotten up once at night to void.

Her present illness began about a month prior to her admittance to the Hospital, with pain in the right lumbar region relieved by lying down. During the week previous to her admission she had three rather severe attacks with pain radiating down to the right groin. On admission she complained of considerable tenderness in the right lumbar region and right

Figure 1

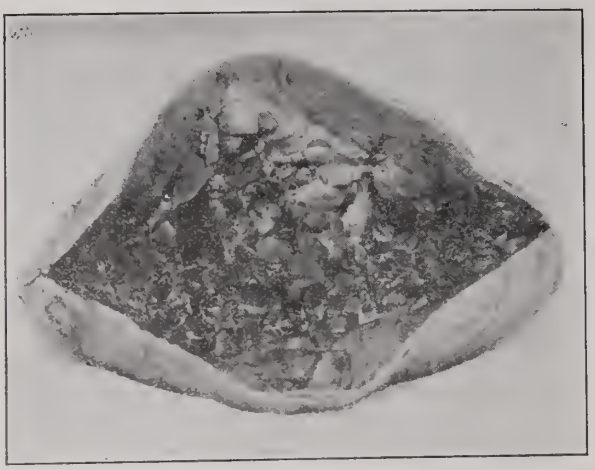

Figure 2

lower quadrant of the abdomen. Her temperature was 100.2, and she looked quite sick. There was a globular mass in the pelvis extending almost to the umbilicus, a four months pregnancy. Otherwise, physical examination was negative. Her blood urea nitrogen was 16 mg. per 100 c.cs. and phenolsulphonephthalein was eliminated, 30 per cent. the first hour and 12 per cent. the second.

Cystoscopic examination showed the base of the bladder to be very much inflamed and the right ureteral orifice œdematous, the left, normal. Two c.cs. of 0.4 per cent. indigo-carmin solution was given intravenously and its appearance noted. The dye was eliminated by the left kidney in 8 minutes. There was no elimination seen from the right at the end of an hour.

The right kidney pelvis was irrigated with 1 per cent. mercurochrome solution and it was interesting to note that the patient's temperature returned to normal within 12 hours and remained so throughout her stay in the Hospital.

Roentgenographic examination, January 17th, showed multiple stones in the region of the pelvis of the right kidney. (Fig. 1).

On January 21st, she was operated upon and her right kidney removed by Dr. J. S. Horsley. The specimen consisted of the kidney, whose pelvis and calyces were markedly dilated and filled with stones varying in size from that of a millet seed to a half-inch in diameter. (Fig. 2).

She left the Hospital February 17th in excellent condition and gave birth to a healthy baby a few months later. Her health has continued to improve.

This case not only illustrates the fact that a large number of stones may be present for a considerable time and cause very few symptoms, but it also shows that nephrectomy may be done during pregnancy with safety to both mother and child when the remaining kidney is known to be healthy.

The Truth About Medicine

During October the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

The Seydel Manufacturing Co.;
Betanaphthol Benzoate
Benzyl Alcohol
Mercury (Mercuric) Benzoate
The Abbott Laboratories:
Acriflavine and Proflavine.

NEW AND NONOFFICIAL REMEDIES.

Ichthynat.—An aqueous solution, the important medicinal constituents of which are ammonium compounds containing sulphur in the form of sulphonates, sulphones and sulphides. These characteristic forms of sulphur result from the sulphonation of the tarlike distillate obtained from certain bituminous shales. For the actions and uses of ichthynat see the general article on Sulphoichthyolate Preparations and Substitutes, New and Nonofficial Remedies, 1920, page 318. The Heyden Chemical Works, New York City. (Jour. A. M. A., Oct. 2, 1920, page 939.)

Proganol.—A compound of silver and albumose, containing not less than 8.3 per cent. of silver in organic combination. For the actions and uses of proganol, see general article on silver preparations, New and Nonofficial Remedies, 1920, page 306. From 0.25 to 1 per cent. solutions are used in acute gonorrhea, and 5 to 10 per cent. instillations in chronic cases. In cystitis and urethritis from 1:1,000 to 1:2,000 solutions are used as irrigations. Used also in forms of bougies and tampons (5 to 10 per cent).

Twenty per cent. Aromatized Suspension made from Benzyl Benzoate, Van Dyk and Co.—A mixture, each 100 Cc. containing benzyl benzoate for therapeutic use (Van Dyk and Co.), 20.32 Gm.; acacia, 8.0 Gm.; olive oil, 5.00 Gm.; sugar, 12.00 Gm.; flavors and water, to make 100 Cc. For actions of uses of benzyl benzoate, see New and Nonofficial Remedies, 1920, page 49. United Synthetic Chemical Corporation, New York (Jour. A. M. A., Oct. 16, 1920, page 1069).

Acriflavine-Abbott.—A brand of acriflavine (see New and Nonofficial Remedies, 1920, page 20) complying with the N. N. R. standards. The Abbott Laboratories, Chicago.

Proflavine-Abbott.—A brand of proflavine (see New and Nonofficial Remedies, 1920, page 21) complying with the N. N. R. standards. The Abbott Laboratories, Chicago.

Betanaphthol Benzoate-Seydel.—A brand of betanaphtol benzoate (see New and Nonofficial Remedies, 1920, page 189) complying with the N. N. R. standards. Seydel Manufacturing Co., Jersey City, N. J.

Benzyl Alcohol-Seydel.—A brand of benzyl alcohol (see New and Nonofficial Remedies, 1920, page 27) complying with the N. N. R. standards. Seydel Manufacturing Co., Jersey City, N. J. (Jour. A. M. A., Oct. 30, 1920, page 1205).

PROPAGANDA FOR REFORM.

More Misbranded Venereal Nostrums.—The following preparations have been subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act, on the ground that the therapeutic claims made for them were false and fraudulent: Injection Malydor (The Williams Mfg. Co., Cleveland, Ohio), essentially a dilute watery solution of boric acid, phenol, a zinc salt, glycerin, acetanilid and unidentified plant material G Zit (The Stearns Hollinshead Co., Inc., Portland, Oregon), bougies consisting essentially of cacao butter and a silver compound. G Zit Antiseptics (The Stearns Hollinshead Co., Portland, Oregon), composed essentially of oils of copaiba and cubebs, and a compound of sulphur. Hinkle capsules (Hinkle Capsule Co., Mayfield, Ky.), consisting essentially of powdered cubebs, copaiba and cannabis indica. Tisit-Pearls (S. Pfeiffer Mfg. Co., East St. Louis, Ill.), consisting essentially of a mixture of oil of sandalwood, balsam of copaiba, oil of cinnamon and a fixed oil. Tisit (S. Pfeiffer Mfg. Co., East St. Louis, Ill), a watery solution of zinc sulphate, thymol, alum and glycerin. Black-Caps (Safety Remedy Co., Canton, Ohio), consisting essentially of copaiba, cubebs and saw palmetto. Hexagon (Montebello Laboratories, Kansas City) an injection consisting essentially of a watery solution of zinc sulphocarbolate, boroglyceride and bismuth subnitrate and capsules containing hexamethylenamin. Hyatt's A. B. Balsam (C. N. Crittendon Co., New York City), consisting essentially of potassium iodid, alum, Epsom salt, plant extractives and unidentified alkaloids, sugar, glycerin and alcohol. DuQuoin's Compound Santal Pearls (Wm. R. Warner and Co., Inc., New York City), consisting essentially of a mixture of santal oil and copaiba. (Jour. A. M. A., Oct. 2, 1920, page 954).

More Misbranded Venereal Nostrums.—The following preparations have been the subject or prosecution by the federal authorities under the Food and Drugs Act, chiefly because the therapeutic claims made for them are false and fraudulent. Injection Zip (The Baker-Levy Chemical Co.), consisting essentially of acetates and sulphates of zinc and lead, opium, berberin, plant extractives, alcohol and water. Three Days Cure ("3 Days" Cure Co.), consisting essentially of zinc sulphate, boric acid and water. Redsules (H. Planten and Son), consisting essentially of oil of santal, copaiba and methyl salicylate. Blakes Capsules (Henry K. Wampole and Co.), consisting essentially a tablet of salol suspended in a mixture of volatile oils, oleoresins and plant extractives, including copaiba and cubebs. Compound Extract of Cubebs with Copaiba (The Tarrant Co.), consisting essentially of cubebs, copaiba and magnesium oxid. Santal Midy Capsules (E. Fougera and Co.), containing essentially oil of santal (Jour. A. M. A., Oct. 9, 1920, page 1016).

The Bethlehem Laboratories Explain.—The president of the General Laboratories, who is also vice president of the Bethlehem Laboratories, explains that the Bethlehem Laboratories is the sales and distribution organization for hyclorite, which is manufactured by the General Laboratories, and that the offer from the Bethlehem Laboratories to sell to physicians shares in the company was the unauthorized act of an authorized agent. The General Laboratories and the Bethlehem Laboratories recognize the impropriety of soliciting physicians to purchase stock in their concern (Jour. A. M. A., Oct. 9, 1920, page 1016).

Succus Cineraria Maritima.—The medical profession is at present receiving through the mail circulars extolling this nostrum for its alleged virtue in "absorbing" various forms of cataract. In February, 1917, the Bureau of Chemistry of the U. S. Department of Agriculture issued a Notice of Judgment which showed that the government authorities had prosecuted the firm which markets the preparation—The Walker Pharmacal Company—because claims were made on the trade package to the effect that this nostrum was a remedy for cataract and other opacities of the eye. The authorities charged that these claims were false and fraudulent. To this charge the company has pleaded guilty, but these claims are still being made through other avenues to the medical profession (Jour. A. M. A., Oct. 9, 1920, page 1007).

The Use of Arsphenamine And Related Compounds.—Many therapeutic perplexities remain after nearly a decade of trial of the type of compound which Ehrlich introduced. It is well for the practitioner to realize this, especially when expert workers still make an appeal for conservative interpretation. Arsphenamine has apparently made it possible or even probable, but only to the inexperienced has the cure of syphilis been made absolute and inevitable. Even the composition of arsphenamine and neoarsphenamine is not fully known, and the control of the products by the government is important. It should be borne in mind also that neoarsphenamine behaves differently in the animal organism from arsphenamine, and should not be regarded simply as arsphenamine in a convenient form for administration. The various brands of arsphenamine and neoarsphenamine made in the United States compare favorably as to toxicity with those from abroad (Jour A. M. A., Oct. 9, 1920, page 1005).

Bran-O-Lax Tablets.—The public is urged to purchase these "Laxative Wheat-Bran Tablets for constipation and indigestion instead of those severe and harmful drugs". The essential claims either interred or expressed, are to the effect that Bran-O-Lax Tablets are wheat bran in condensed form and that they are free from "harmful drugs". It is also claimed that "Bran-O-Lax contains one heaping tablespoonful of plain nutritious wheat bran condensed into tablet form". The A. M. A. Chemical Laboratory reports that Bran-O-Lax Tablets contain wheat bran, reducing sugar (probably glucose) in large amounts, a gummy substance, probably acacia, and about one grain of phenolphthalein per tablet. Whereas a heaping tablespoonful of wheat bran was found to weigh about 166 grains, the total weight of a Bran-O-Lax Tablet was only about 35½ grains (Jour. A. M. A., Oct. 16, 1920, page 1083).

Toxicity of Arsphenamine.—Roth has determined that if an alkalized solution of arsphenamine or a solution of neoarsphenamine is shaken in the presence of air for one minute, the toxicity is increased. He points out that arsphenamine preparations which are soluble with difficulty are likely to be shaken to aid in the solution of the drug with the risk that chemical reaction may occur (Jour. A. M. A., Oct. 16, 1920, page 1072).

Chaulmoogra Oil In Leprosy.—Continued trials made at the leprosy investigation station of tho U. S. Public Health Service and the Kalihi Hospital at Hawaii seem to justify more than ever the statement that chaulmoogra oil contains one or more agents that exert a marked therapeutic action in many cases of leprosy. The intramuscular injection of the soluble ethyl esters of the fatty acids from chaulmoogra oil usually leads to a rapid improvement in the clinical symptoms of leprosy. The ethyl esters of iodin addition compounds of the unsaturated fatty acids in chaulmoogra oil have also been used. There is no experimental proof that this addition of idoin causes any increase in the effectiveness of the material used (Jour A. M. A., Oct. 16, 1920, page 1071).

Fake Orange Beverages.—The orange and other citrus fruits possess value other than that which can be measured by flavor or fuel value. They are relied on as antiscorbutic by a large number of persons in the preparation of food mixtures which for some reason are deficient in this protective element. Oranges merit additional favor because they are relatively rich in the water-soluble vitamin B, sometimes designated antineuritic vitamin, which promotes well-being in as yet an undetermined way. In view of these facts, the chemists of the U. S. Public Health Service have done well in their timely warning against the "fake" orange beverages that have come to their attention. They report that in most cases the fraudulent products consisted of carbonated water, flavored with a little oil from the peel of the orange and artificially colored to imitate orange juice (Jour. A. M. A., Oct. 16, 1920, page 1073).

Vaccines in Toxic Conditions.—Under this title an article purporting to be a scientific contribution appears in the original department of the Illinois Medical Journal. The apparent purpose of the article is to overcome any hesitancy on the part of practitioners to use vaccines in toxic infectious conditions for fear that they might thereby cause harm. The theory propounded is contrary to those who have studied the subject. The man who writes the article, G. H. Sherman, is in the business of making and selling vaccines, though this is not made evident in the article (Jour. A. M. A., Oct. 23, 1920, page 1140).

More Misbranded Products.—The following products have been the subject of prosecution by the federal authorities: Salubrin (Salubrin Laboratories, Grand Crossing, Chicago) was held to be misbranded because the therapeutic claims made for it were false and fraudulent. Dolomol-Calomel and Dolomol Iodoform (Pulvola Chemical Co., Jersey City, N. J.) were held to be adulterated and misbranded because they did not have the composition claimed. Influenza Special (Senoret) (Senoret Chemical Co., St. Louis) was misbranded because the therapeutic claims made for it were false and fraudulent. Gray's Ointment (Dr. W. F. Gray and Co., Nashville, Tenn.) was misbranded because the therapeutic claims were false and fraudulent. Vegetable Blood Purifier (Gibson-Howell Co., Jersey City, N. J.), was held misbranded on the ground that the therapeutic claims were false and fraudulent. Renovine (Van Vleet-Mansfield Drug Co., Memphis, Tenn.), was held to be misbranded because the therapeutic claims were false and fraudulent. Cin-Ko-Na and Iron (De Lacy Chemical Co., St. Louis) was declared misbranded because the curative claims were false and fraudulent. Craig Healing Spring Mineral Water (Craig Healing Springs Hotel, New Castle Va.), was held to be misbranded because the therapeutic claims were false and fraudulent. Laxa-Cura Water (Laxa-Cura Water Co.) was held to be adulterated and misbranded because it consisted in part of a filthy and decomposed putrid animal and vegetable substance, and because the alleged analysis was incorrect and because the curative claims were false. Reuter's Little Pills for the Liver (Barclay and Co., New York) were held misbranded because the curative claims were false and fraudulent (Jour. A. M. A., Oct. 23, 1920, page 1150).

Tannin Compounds Used as Intestinal Astringents.—On account of the irritant action of tannic acid on the stomach, a number of tannic acid compounds have been introduced which are assumed to pass the stomach practically unchanged but are broken up in the intestines with liberation of the tannic acid. Working in the A. M. A. Chemical Laboratory, P. N. Leech has made a study of the tannin compounds described in New and Nonofficial Remedies, and also of some recently introduced American products, to determine whether they are largeley unchanged by action of gastric juice, and if so, whether they are capable of decomposition by the intestinal juice. For this purpose he determined the solubility of each compound in water and hydrochloric acid solution, acid and pepsin solution, and sodium bicarbonate and pancreatic extract solution. Only one type of tannic acid compounds studied completely resists the action of the gastric juice and is broken down in the intestine according to theory, i. e., the diacetyl tannin acid compound acetannin. Tannigen is fairly satisfactory, but the market supply is not of reliable composition. Protan and tannoform are both readily soluble in sodium bicarbonate mediums, but they are probably not broken up to a great extent in the intestine. Of the tannin albuminates, Albutannin-Calco and Albutannin-M. C. W. are not nearly so resistant to the acid-pepsin digestion as tannalbin and tannin albuminate exsiccated. Both tannalbin and tannin albuminate exsiccated (the latter now sold as Albutannin-Merck) are not particularly resistant to the acid-pepsin medium, but they do liberate free tannic acid in the alkaline-pancreatic medium (Jour. A. M. A., Oct. 23, 1920, page 1120).

Capsules Folia—Digitalis—Upsher Smith and Tincture of Digitalis Upsher Smith.—The Council of Pharmacy and Chemistry reports that these preparations, advertised and sold by Upsher Smith, St. Paul, Minn., were considered and found to have the status of official articles. For this reason they were not admitted for inclusion in New and Nonofficial Remedies (Jour. A. M. A., Oct. 30, 1920 page 1205).

Supsalvs Not Admitted to N. N. R.—The Council on Pharmacy and Chemistry reports that Supsalvs are advertised by the Anglo-French Drug Co. as "stable suppositories of '606' (of French manufac-

ture)" with the claim that by rectal administration of these suppositories the effects of arsphenamine may be obtained. The Council found Supsalvs inadmissible to New and Nonofficial Remedies, first, because the quality of the medicament contained in the suppositories has not been established and, second, because the claimed efficacy of this preparation as a means of securing the effects of arsphenamine lacks substantiating proof. In its report the Council quotes from L. W. Harrison on "The Treatment Of Syphilis", from Schamberg and Hirschler on "A Safe and Efficient Intensive Method of Treating Syphilis", and from the report of the special committee on the manufacture, biological history and clinical administration of salvarsan and other substances of The British National Insurance Medical Health Research Committee, to show that the general opinion of experienced workers is to the effect that the rectal method of administering arsphenamine is ineffective (Jour. A. M. A., Oct. 30, 1920, page 1219.)

Correspondence

Should Chiropractors be Admitted to Practice in Virginia Without Certificates?

Roanoke, Va., December 3, 1920.

To the Editor:—

It may not be generally known by those whose attention has not been directed to the matter, that as a near cut to medicine, Chiropractors have been very active with their propaganda throughout the country during the past year. As an instance, it is stated that in Illinois, until enjoined by the courts, they maintained an organization with an insurance feature through which the fines of those convicted were paid, the convicted party continuing practice.

Until quite recently, the number practicing in Virginia has been limited to those who where established previous to 1913 and who were permitted to continue practice by an act of the legislature, no provision being made for future admissions.

As a part of a general drive for recognition, within the past few months, the cult seems to have centered its energies upon Virginia and their method of propaganda has all the earmarks of being directed from some central source and is being worked in season and out of season. Their methods are shrewdly devised in that they have adopted the tried out plan of liberal advertising in the newspapers after the manner of Patent Medicine concerns and, in addition, have also, in some localities, adopted the course of house to house distribution of literature making all sorts of extravagant claims relative to the cure of disease without diagnosis and without other treatment than the "adjustment" of the spine, thereby endeavoring to evade the law.

An important part of their plan of procedure is to so word their advertising matter as to make all prosecutions appear as persecutions instigated by the medical profession, and their success along this line was attended by the acquittal by jury of one brought to trial at Danville last month. This was accomplished despite the fact that the Judge instructed the Jury that the defendent was practising in violation of the statute.

The purpose of this communication is both to call attention of the profession of the state to the menace as set forth, and to the fact that while the law makes it obligatory upon the Examining Board to prosecute violations of the Medical Practice Act, no fund is provided for such prosecutions. Although it devolves upon the Commonwealth's Attorneys of the localities in which complaints are made to represent the Board, as a matter of fact these officers have such a mass of detail continually before them in their routine work, no matter how willing, they can rarely find time to sufficiently acquaint themselves with the Medical Practice Act and the various rulings bearing upon it to bring such cases to a successful issue unless able counsel be employed to assist. Taking a general view of the situation, it is very evident that if the propaganda of these people is to be met, prompt and vigorous methods must be adopted and the support of the entire medical profession of the state must be had.

In so far as physicians are concerned, it perhaps makes but little more difference whether this particular cult is allowed to practice in the State, than that the sale of harmful patent medicines be permitted, but it is an entering wedge and, since the enforcement of the law is placed in the hands of the profession, it is obligatory upon it either to enforce such law and protect the public, or to refuse to accept the obligation.

It should perhaps here be stated that in addition to the case just closed in Danville, two Chiropractors have within the past month been convicted and fined in the police court in Roanoke. They have appealed and are continuing advertising and practising. Evidence is also being collected and preparation made for the prosecution of one recently located in Newport News.

In order to prevent these people and similar cults which live mainly by misleading advertising methods from becoming rooted in the state, the Examining Board would appreciate it if the medical organization in any locality in which such illegal practice be attempted report the matter promptly. The Board also confidently relies upon the full report of such organizations in instituting proceedings against such violations of the law.

J. W. Preston, *Sec'y.-Treas.*,
State Board of Medical Examiners.

Public Health

Bacteriological Laboratory of The State Board of Health.

We now have ready for distribution our new Blood Culture outfits. Any physician may obtain these upon request. This outfit consists of a bottle of bile culture medium and the usual blank to be filled out.

The Blood Culture is the best diagnostic test now available for typhoid fever and similar infections. The blood is drawn aseptically from a vein and inoculated directly into the bile media. This is incubated and any organism found is studied and identified. All organisms of the typhoid group will grow under these conditions. About two days are usually necessary to complete this examination, but the trouble is amply repaid by the satisfactory results obtained.

One of the greatest advantages of the Blood Culture is that it is most reliable early in the disease when a diagnosis is of the greatest value. The typhoid bacillus usually leaves the blood before the Widal test becomes positive.

We find that physicians often place too much importance on a single negative specimen. No single negative report should ever be considered as conclusive. This is particularly true of sputum examinations as we not infrequently find the tubercle bacillus present in a case where several previous specimens have been negative.

Aubrey H. Straus,
Bacteriologist of the
State Board of Health.

Secretary's Announcement

Final Call For 1920.

Uncollected dues of the State Society at this time, December 2nd, amount to slightly more than two thousand dollars, this in spite of the fact that bills and notices have been mailed regularly every month at considerable expense. A conservative estimate shows that if all members of the Society paid their dues promptly in January on receipt of the first account rendered, the Society would save not less than four hundred dollars in postage and stationery and would earn about one hundred more in interest on daily balances. Applying the time spent in handling this detail matter towards getting new advertising and maintaining our membership should net the society as much more. In other words it will be worth at least one thousand dollars to the Society if all the members will do as several hundred do—pay their annual assessment in January.

Members owe the Society as follows:

107	members owe	$ 4.00	each.....	$428.00
41	" "	6.00	"	246.00
40	" "	8.00	"	320.00
31	" "	10.00	"	310.00
22	" "	12.00	"	264.00
18	" "	14.00	"	252.00
4	" "	2.00	"	8.00
2	" "	6.35	"	12.70
6	" "	8.35	"	50.10
3	" "	16.35	"	49.05
2	" "	18.35	"	36.70
6	" "	20.35	"	122.10
1	member owes	10.35	"	10.35
1	" "	16.00	"	16.00
1	" "	17.00	"	17.00
1	" "	22.35	"	22.35
286	members owe			$2,164.35

We are making a strong effort to collect from all of these men before January 1st, 1921, as all members who have not settled their accounts by that date will lose membership in the State Society. Following the practice of the American Medical Association, sight drafts will be drawn on those members who have not paid within a reasonable time after the receipt of the last notices sent out in December. This is an added convenience to those doctors who do not find an opportune moment for writing checks.

If you have not done so please send in your check today—your treasury must have the funds for meeting accounts which are presented to this office with surprising and disconcerting regularity!

Extra Service For Our Members.

Automobile Insurance including Fire, Theft, Property Damage, Public Liability, and Collision at actual cost. The company handling this insurance in Virginia promises its policy holders a saving of thirty per cent. In writing for information, give the name of your car, model, car number, engine number and price paid for it. If instructed in your letter, insurance will be placed on it immediately. We can give you both old line rates and our own. Losses are taken care of immediately on receipt of notice of them.

If stock salesmen offer you stock or securities of any kind refer the matter to this office for investigation. This covers looking up the records in the office of the State Corporation Commission to see if the company and the salesman have complied with the law; if from a banking concern we can get a report from the State Bank Examiner, and the general value of the investment will get the close inspection of one or more experts on investments here. The latter service can be rendered just as well by your local banker. Many good investments are on the market today—we carry advertisements regularly of thoroughly reliable investment concerns in Richmond, Norfolk, and Petersburg. Others will be added in the near future. Why not tie up with them?

If your local telephone company persists in not giving you the kind of service you are paying for, refer the matter to this office. We have the ear of the State Corporation Commission and we can possibly get for you an immediate improvement in service.

G. H. Winfrey, *Secretary-Treasurer.*

Medical Education

The Hospital And The Medical School.

In the end the final test of a medical school is its outcome in the matter of clinicians. The battle may indeed be lost before a shot is fired: a low average of student intelligence and inferior laboratory training will fatally prejudice even excellent clinical opportunities, for they rule out certain essential features of clinical training on a modern basis. A serviceable type of doctor was doubtless once produced under conditions that we now pronounce highly unsatisfactory; again, students defectively trained sometimes meet with success in examination or other tests designed to ascertain the quality of their instruction. It is not necessary to investigate closely the merits of the test in order to refute the argument that it endeavors to sustain. The institutions that seek to establish the non-importance of facilities that they do not possess emphasize strongly the importance of those they do. And with good reason. Before undertaking the responsibility of instruction in chemistry or physics or biology, a competent teacher stipulates that he be provided with this, that, or the other. He is not to be put off with the assurance that some men have successfully mastered the subject without laboratory or tools. Very properly he takes the ground that whatever may be true of individuals, in general boys will be much better trained in a laboratory with the essentials than in a bare room practically without them. It is equally true of clinicians. Doctors have after a fashion been made by experience,— *i. e.*, their patients paid the price: further, some graduates of every feeble clinical school in the country have passed state board examinations or obtained hospital appointments, at times after competitive examinations in which they defeated students from schools more highly favored; it still remains true that to do full duty by the young student of clinical medicine, his teachers need access to acute cases of disease in respectable number and variety: that the school which lacks such medical facilities is in no position to teach modern medicine.

In the matter of laboratories we discovered no slight cause for satisfaction. Within two decades the laboratory movement has gained such momentum that its future, even its immediate future, is in no doubt. A race of laboratory men has been trained and quite widely distributed. They know their place and function: they have educated the college administrator to accept them at their own valuation. Where deficient resources still force a compromise, the apologetic attitude is a sufficient promise of more liberal provision by

Abstracts from The Carnegie Foundation for the Advancement of Teaching. Bulletin Number Four.

and by. On the clinical side the outlook is less reassuring. The profession itself has in large measure still to be educated; the clinical faculty often stands between the university administrator and a sound conception of clinical training. It happens, therefore, not infrequently that a university president will hear with astonishment, if not with resentment, that facilities made up of insecure and disconnected privileges scattered here and there through the hospitals, public and private, of a communit now large, now small, do not satisfy the fundamental requisites of clinical discipline supervening upon modern laboratory work; or that a surgical clinic is no substitute for a clinic in internal medicine. The regeneration of clinical education is therefore apt to proceed somewhat slowly: the sources from which well trained clinical teachers can be drawn are few; the places in which they can be freely utilized are equally restricted. Students trained in the laboratories on modern lines enter clinical departments still more or less unconverted. The result is at best a half-result, yet upon it progressive amelioration in large measure depends.

Once more a few schools meet the specifications set forth in the preceding chapter. We there urged that the backbone of clinical instruction must be a pedagogically controlled hospital best developed on its medical side. The exact status of the hospital may indeed vary: a proper footing has been obtained now through co-ordinate and co-operative endowment,[1] again through state support in connection with the state university,[2] at times through a really effective affiliation.[3] The crucial points are these: (1) the hospital must be of sufficient size; (2) it must be equipped with teaching and working quarters closely interwoven in organization and conduct with the fundamental laboratories of the medical school; (3) the school faculty must be the sole and entire hospital staff, appointment to which follows automatically after appointment to the corresponding school position; (4) the teaching arrangements to be adopted must be left to the discretion and judgment of the teachers, subject only to such oversight as will protect the welfare of the individual patient.

Size Of A Teaching Hospital.

There is little difference of opinion as to the necessary size of a teaching hospital. Less than two or three hundred beds, in practically continuous occupation, can hardly supply either the number or the variety of cases required. It is held that a hospital of 400 beds will support a medical school of at least 500 students. It is highly important that the instructor should have the material that he needs when he needs it. The material must, moreover, be properly distributed: an abundant clinic in diseases of the eye is no substitute for defects in the departments of internal medicine and obstetrics; seventy-five cases of operated appendicitis do nothing to compensate for the lack of typhoid, pneumonia, or scarlet fever.

The size of the school has, of course, some bearing on the necessary size of the hospital, though the hospital cannot be allowed to shrink in exactly the same ratio as the number of students. Because two hundred beds may be made to suffice for one hundred students, it does not follow that twenty beds suffice for ten students. Twenty-five students require in general the same minimum as one hundred students. On the other hand, it is fair to weigh advantages and disadvantages against each other. A small number of students in a small but still fairly representative and completely controlled university hospital, through whose corridors fresh scientific breezes from the university and medical school laboratories blow, will get a better discipline in the technique of modern medicine than a larger body, loosely supervised in an antiquated city hospital where "students" are eyed askance as interlopers. The defects of the former, due to somewhat circumscribed experience, a hospital year will quickly redeem, for he has, and knows how to use, the tools; the defects of the latter will as a rule never be repaired at all. Such a hospital year is in any event highly desirable. It is to be hoped that a more effective and economical organization of preliminary education and a more intelligent public opinion may presently make its exaction generally feasible.

On the basis of the undergraduate instruction described, opportunities for advanced or

1Johns Hopkins.
2Michigan; Iowa.
3Lakeside Hospital and Western Reserve (Cleveland). The newly endowed Barnes Hospital (St. Louis) will occupy a similar position in reference to Washington University.

graduate instruction must supervene. Such opportunities serve two quite different functions. In the first place, the various specialties must be systematically and thoroughly developed as graduate pursuits, resting on a thorough training and experience in general medicine. The number of these specialties is increasing, as more varied and more effective appliances suggest increased differentiation,—a safe tendency, in the interest of efficiency, provided the discipline required does not infringe upon undergraduate territory. In the next place, to these postgraduate institutions the hard-run intelligent practitioner in smaller towns will at intervals return, in order to be invigorated at the head-waters: he will want to get in touch with recent improvement, to see in a brief period a large variety of interesting material, handled by experts in his own field. To both these purposes, the larger hospitals of our great cities may freely lend themselves. Their abundant wards can be used to excellent advantage, even though they may continue to be governed by their present boards. It is probable that the obstacles to such use will largely disappear as the competitive and commercial exploitation of medical education is itself abandoned. For beyond all doubt, not the least serious of the deplorable consequences that have followed in the wake of mercenary medical education is the limitation of hospital opportunities, due to the rivalry of "faculties" and to the incompetent student body to which, largely because of such antagonisms, the intimacy of the ward privilege would have had to be extended.

Clinical Teaching.

Clinical teaching has had substantially the same history as anatomical teaching. It was first didactic: the student was told what he would find and what he should do when he found it. It was next demonstrative: things were pointed out in the amphitheater or the wards, those who got the front seats seeing them more or less well. Latterly it has become scientific: the student brings his own faculties into play at close range, gathering his own data, making his own construction, proposing his own course, and taking the consequences when the instructor who has worked through exactly the same process calls him to account: the instructor, no longer a fountain pouring forth a full stream of knowledge, nor a showman exhibiting marvelous sights, but by turns an aid or an antagonist in a strenuous contest with disease.

The backbone of the structure is the clinic in internal medicine. This central fact cannot in America be too strongly emphasized. The sufficiency of the school's clinical resources depends at bottom on its medical clinic; the value of its training depends on the systematic thoroughness with which it is in position to use an adequate supply of medical cases. To sample a school on its clinical side, one makes in the first place straight for its medical clinic, seeking to learn the number of patients available for teaching, the variety of conditions which they illustrate, and the hospital regulations in so far, at least, as they determine (1) continuity of service on the part of the teachers of medicine, (2) the closeness with which the student may follow the progress of individual patients, and (3) the access of the student to the clinical laboratory. It matters much less what else a school has by way of clinical opportunity if it has this, though, of course, the school that has it will have whatever else it needs too. The main point is that there is no substitute for a good clinic in internal medicine; the school sampled and found wanting there suffers from a fatal organic lesion. Excellent didactic instruction is no compensation: successful passing of written state board or other examinations is no proof that the school has managed to do without. A large surgical service with amphitheater operations every day in the week, a dispensary crowded with eye, ear, and throat cases,—these are all very well in their way. But one comes back to the medical clinic: that is the really important item. Until practical state board examinations can be trusted to disclose defective school facilities on the clinical side, it is thrice important to scrutinize carefully the situation of every medical school in this respect. For proper provision rests at this moment on the conscientiousness and intelligence of medical educators. Thus far the states have not adopted an examination procedure that will destroy schools not able to do their duty in regard to the medical clinic.

Teaching Dispensary.

The teaching dispensary follows the same lines as the teaching hospital in respect to both organization and equipment, and must be con-

structed with its pedagogical use in view. It consists essentially of a commodious receiving-room, leading from which are separate rooms, sufficiently large, clean, well lighted, each assigned to a separate department. The several rooms are appropriately equipped with instruments, apparatus, etc., and with a recording system which enables the workers to keep track of each patient and to collate readily all cases of the same general character. Each department must have an organized teaching staff; the receiving-room must be in charge of a physician, who will assign patients to the departments to which they severally belong. The clinical laboratory must be at hand so that the necessary microscopical examinations can be made without loss of time.

From the teaching point of view, the hospital and the dispensary differ in certain respects: certain classes of cases do not usually enter the hospital wards at all: minor surgery, trivial medical ailments, numerous afflictions involving eye, ear, nose, throat, skin, etc. Ambulatory patients are also under less satisfactory control; a large proportion never come a second time. The dispensary is therefore excellently adapted to show a large variety of conditions; it is a relatively poor place to watch their development. In the dispensary the student can become expert in initial physical examination; but only the hospital wards enable him to study progress, to observe nature's comment on therapeutic moves. The dispensary corresponds to the "office hour,"—so important an item in the physician's early progress; the hospital ward represents the sick-room. Clearly, a huge dispensary does not wholly offset a defective hospital.

Between dispensary and hospital, clinical instruction in the third and fourth years is variously apportioned. But apportioned they must be; for the mingling of third and fourth year students in clinical work is severely reprehensible,—an infallible indication of deficient clinical material, imperfect teaching organization or of both. As for the rest, there can be no fixed rule. Important, mainly, is it that the student be brought into immediate and increasingly responsible contact with the disordered machine.

Let us consider briefly the dispensary. The classes are divided into small rotating sections, each with regular appointments in every one of the dispensary departments. The sections, in charge of separate instructors, should not contain more than ten students apiece—rather fewer would be even better. The student is trained at once to take the patient's history, to make the physical examination, to examine blood, uptum, etc., and on the basis of all the facts thus amassed to make a diagnosis and suggest a course of treatment. The instructor stands by, to correct and to stimulate by question, criticism, or suggestion. Everything is a matter of record, and the student's work is thus part of, in a sense the basis of, the complete dispensary records. In the surgical out-patient department, bandaging, stitching up a wound, administering anesthetics, quickly fall to his lot. Schools favorably located in large cities are able to develop considerable out-patient obstetrical work. Thus the student not only amplifies his experience, but learns to combat the conditions under which he will subsequently be called upon to work. He should, of course, in justice to his charge, be accompanied by an instructor, though in the weaker schools this is by no means always arranged. Even so, however, out-patient obstetrical work, though an experience, is not a discipline: it does not dispense with the necessity of careful training in method under ideal hospital conditions. The young physician will never learn technique and the importance of technique properly except in the maternity hospital; having learned them there, his problem in practice is to secure the essentials even amidst the most unpromising environment. In certain of the specialties—dermatology, ophthalmology—the bulk of the direct instruction received is in the dispensary service. To some extent, of course, the conditions observed in them come under repeated observation in the medical clinics of both third and fourth years; full mastery of a specialty belongs of course to the postgraduate years. But the student must be sufficiently at home to help himself in emergencies and to know when and whence to seek further assistance.

In writing advertisers, please mention this journal.

Proceedings of Societies

Norfolk County Medical Society.

The surgical section of the Norfolk County Medical Society met in the rooms of the Society for their regular monthly meeting on November 8th, at eight o'clock, Dr. C. W. Doughtie, chairman of the section, presiding.

The first paper of the evening on the "Diagnosis and Treatment of Ureteral Calculi," was read by Dr. Jas. H. Culpepper.

Dr. Culpepper began by showing the difficulties of diagnosis when depending on either cystoscopy or X-ray alone. The Mayo Clinic has shown that when used alone the radioscopic findings are negative in about 40% of cases. Drs. Geraghty and Hyman have obtained slightly better results, or about one in three of failures. Combined with the cystoscope, however, and perfected technique with ureteral catheterization, the failures are comparatively few. The cause of failure of the radiograph is due to the chemical composition of certain stones that do not cast a shadow, and to the presence of certain extra-ureteral bodies in the field, such as phleboliths, calcified plaques in the arterial walls, calcareous glands and foreign bodies in the intestinal tract that come into the plane of radiation.

Dr. Culpepper stated that the catheterization of the ureter and dislodging of the stone can be accomplished in a greater number of cases than we would believe, and in many that are apparently impossible. He begins with a small sized catheter and passes it to the seat of the stone, then injects alboline as freely as possible and withdraws the catheter. If the stone is not passed by the second or third day the performance is repeated, using a larger catheter each time until the largest size is passed that the cystoscope will take, No. 9 French.

For the comfort of the patient he advocates the use of cocaine in every case in spite of the disadvantages of its uses. Dr. Culpepper advised the use of the cystoscope in every case before doing a laparotomy for stone in the ureter because the stone may move in in a few hours.

Contraindications for the use of the cystoscope are, as Braasch states:—

1st. The stone is more than 2 Cm. in diameter.

2nd. Acute ossification with continuous obstruction.

3. Acute renal infection.

4. The patient's intolerance to cystoscopic manipulation.

5. Anatomic deformity.

Not more than six days should elapse before resorting to laparotomy in the treatment of any case on account of the danger of permanent loss of function for the ureter.

Dr. Culpepper and Dr. Whitlock of the Sarah Leigh Hospital Staff, showed a number of radiographic plates from their collection illustrating the work, such as stones of various locations and sizes in the ureter and catheters in situ.

The next paper was read by Dr. Stanley H. Graves, on "Hemorrhage from the Urinary Tract and its Significance."

Dr. Graves stated that patients as a rule are careless of the significance of blood in the urine and that many physicians share this neglect. While every case does not mean that pathological processes have set in, yet the appearance of hemorrhage is often the first symptom of early and also of late morbid changes in the urinary tract.

The amount of hemorrhage does not indicate the seriousness of the pathological processes.

When hemorrhage is suspected the following points should always be borne in mind:

1st. Is it blood?

2nd. Its source.

3rd. What pathological processes occasion it?

The first question pertains to cases showing small amounts of blood microscopically appreciable, or to those that require chemical tests to show its presence.

The second question deals with the origin of the blood from the kidney down, whether from the renal parenchyma, the renal pelvis, the ureter, the bladder, the seminal vesicles, the prostate or the anterior and posterior urethra.

Dr. Graves took up the diagnostic value of different procedures and instruments, and stressed the importance of carefulness and the need of experience in locating the source of bleeding.

He then went into the morbid processes and possibilities of differential diagnosis stating that it is often necessary to make an exploratory incision to clear up the doubt as to the origin of the disturbance.

Both papers were freely discussed and the meeting was largely attended.

The Society has recently formed a new section for the Eye, Ear, Nose and Throat branch with Dr. B. R. Kennon as chairman.

Dr. Southgate Leigh, the president, has succeeded in arousing the enthusiasm of the men and the meetings have been exceedingly interesting.

Edward D. Starke

210 *Taylor Building.*

The Warren - Rappahannock - Page County Medical Society

Held its regular meeting at Luray, Va., November 9, Dr. J. M. Ropp presiding. Papers were read by Dr. S. S. Gale, of Roanoke, on Blood Transfusion; by Drs. E. G. Gill and Kenneth D. Graves, of Roanoke, on The Tonsil from a Clinical and Pathological Standpoint; by Dr. J. T. McKinney, of Roanoke, on The X-Ray in Tuberculosis; and by Dr. S. Beverly Cary, of Roanoke, on Idiopathic Hematuria. The papers were all interesting and instructive as were also the discussions which followed.

The following officers were elected: President, Dr. E. G. Brumback, Luray; vice-president, Dr. George H. Long, Luray; secretary-treasurer, Dr. F. L. Smith, Stanley. The next meeting will be held in Front Royal in April 1921.

Arlington County Medical Society.

At a meeting of the Arlington (formerly Alexandria) County Medical Society at Clarendon, December 1, the following officers were elected for the ensuing year: Dr. R. N. Sutton, Clarendon, president: Dr. W. C. Welburn, Ballston, vice-president; Dr. B. H. Swain, Ballston, secretary-treasurer. There was a good attendance and interesting and profitable discussions were held on several subjects. Much enthusiasm was manifested.

The Society is a good live one and it is earnestly hoped that all the physicians of the county will attend the meetings and so build up a society in which every doctor in the county will be interested.

B. H. Swain,
Secretary-Treasurer.

The Prince Edward County Medical Society

Held its regular monthly meeting on November 16, at Dr. Thos. G. Hardy's private hospital, in Farmville. Dr. William E. Anderson, the president, was in the chair and Dr. Hardy at the secretary's desk. Papers were read by Dr. Anderson on "Closer Association of the Town and Country Doctors" and by Dr. Hardy on "Indigestion", and these were freely discussed by the members present. Dr. Susan A. Price, of the Normal School Infirmary, invited the Society to meet with her in December, which invitation was accepted. Following the business session, the members adjourned to Dr. Hardy's home where they were tendered an informal reception and refreshments were served.

The South Piedmont (Va.) Medical Society

Held its semi-annual meeting in Masonic Hall at South Boston, November 23. The attendance was good and an afternoon and evening session were held. Several interesting papers were read and these were freely discussed. Present officers of the Society are: Dr. John A. Owen, Turbeville; vice-presidents, Drs. W. W. Robertson, Witt, S. R. Jordon, Virgilina, C. W. Tucker, Drakes Branch, and Geo. P. Hamner, Lynchburg; secretary, Dr. Geo. A. Stover, South Boston, and treasurer, Dr. H. S. Belt, South Boston.

The Luenburg County Medical Society,

At its regular meeting on December 7, elected the following officers for the next twelve months: President, Dr. H. T. Hawkins, Kenbridge; Vice-President, Dr. E. M. Mann, Kenbridge; Secretary-Treasurer, Dr. Robt. Whitehead, Meherrin.

Edwin M. Mann.

The Shenandoah Valley Medical Association

Was organized at a meeting held in Harrisonburg, Va., early in December. It is composed of physicians from the counties of Augusta, Rockbridge, Bath, Rockingham, Shenandoah, Frederick and Page. The idea of the formation of this Society had its inception several months ago, when the Rockingham County Society held a meeting, at which Augusta County doctors were their guests. The plan of organizing the doctors of the Shenandoah Valley into a society was endorsed at that time and a committee was appointed to

take up the plan with the doctors in the other counties. A paper was read by Dr. J. C. Flippin, of University, Va., and a banquet followed the business session. Meetings will be held semi-annually, on the last Thursday in May and September. The May 1921 meeting will be held in Staunton.

Officers elected are: President, Dr. Marshall J. Payne, Staunton; vice-presidents, Drs. C. E. Conrad, Harrisonburg; P. W. Boyd, Winchester; W. F. Driver, New Market; secretary, Dr. A. C. Byers, Harrisonburg; treasurer, Dr. J. M. Biedler, Harrisonburg.

Executive Committee: Drs. R. P. Bell, Staunton, and J. E. Lincoln, Lacey Spring.

Program Committee: Drs. J. H. Deyerle, Howard Armstrong, E. R. Miller, of Harrisonburg, and A. L. Tynes, R. P. Bell and J. H. Rawlings, of Staunton.

Membership Committee: Drs. G. G. Snarr, Harrisonburg, E. C. Stuart, Winchester, and G. H. Thomas, Staunton.

Book Announcements

Medical Clinics of North America. Published by W. B. Saunders Co., Philadelphia. Sold only by the clinic year—six numbers. Price, cloth $16.00, paper $12.00.

Medical Clinics of North America begins its fourth year with rather a pretentious *New York* issue of 369 pages embracing clinics on practical and scientific subjects at nine of the leading hospitals of the metropolis. Of particular interest, mention may be made of the following: Complications and Sequelae of Influenza and their Management, by Dr. Harlow Brooks; Treatment of Advanced Heart Failure, Dr. Cary Eggleston and he says if one is not prepared to determine the activity of the digitalis by the cat method and there is no special indication for haste in digitalizing the patient, a satisfactory method of administering is to give a dram of the tincture every six hours for four doses. Then reduce the dose by one-half and the intervals to four hours, etc.

The Prevention and Serum Treatment of Labor Pneumonia by Dr. Russell L. Cecil will be doubly interesting to the Virginia profession. Space forbids even an enumeration of the authors and articles of this issue which the reviewer regards as the best ever published in this series.

Criticism might be offered for putting fifty pages in "Diagnosis of Encapsulated Pleural Effusion", as well as the refusal of the publishers to sell single numbers.

Number Two—*Boston* issue consists of three clinics from the Massachusetts General Hospital, nine from Boston City Hospital and six from the Children's Hospital. It emphasizes the fact that Boston is a great teaching centre, particularly in pediatrics.

H.

A Text-Book of Physiology. For students and practitioners of medicine. By Russell Burton-Opitz, S. M., M. D., Ph. D., Associate Professor of Physiology, Columbia University, New York. Philadelphia and London, W. B. Saunders Company. 1920. 8 vo. 1185 pages, with 538 illustrations. Cloth, $7.50 net.

We think it fair to say that the Burton-Opitz Physiology brings the subject up to the present date and must be considered among the very best physiologies ever published. It is complete, well illustrated, unusually succinct and entertainingly written. Modern physiological views are discussed. Many experiments are cited. References to the literature are excellent.

The explanation of reflex phenomena is the clearest we have seen. The section on the heart and circulation is deserving of the highest praise. The section on internal secretion is the most elaborate and the most practical we know of in any book on physiology.

The whole book is entertaining, instructive, well arranged and well written and we can unhesitatingly recommend it both as a text book for students and a reference book for practitioners.

B. R. T.

The Fundamentals Of Human Anatomy, Including Its Borderline Districts. From the Viewpoint of a Practitioner. By MARSH PITZMAN, A. B., M. D., Professor of Anatomy in Dental Department of Washington University, St. Louis. 8 vo. 356 pages with 101 illustrations. St. Louis. C. V. Mosby Company. 1920. Cloth. Price, **$4.00**

Exophthalmic Goiter And Its Nonsurgical Treatment. By ISRAEL BRAM, M. D., Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia; Member of the Society for Study of Internal Secretions. St. Louis. C. V. Mosby Company. 1920. 8vo. 138 pages. Cloth, Price, $5.50.

Virginia Medical Monthly

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Editorial

Heart Sounds.

In auscultation of the heart the first and second sounds should be considered carefully. The variations from normal carry some significance and should be assigned a position of proper importance in the evidence gathered. While some may feel that little reliance may be placed on interpretations adduced from abnormal heart sounds, yet many clinicians in cardiac examinations attend quite carefully to impressions received during a heart study to the quality and timing of the heart sounds.

The first sound is made up of two accepted factors, the contraction of the ventricular walls and the tightening and closure of the mitral and tricuspid valves. From this combination of elements in heart systole is emitted that sum of vibration called the first sound. Necessarily consequent upon the origin of the sound many alterations and variations are found, often in hearts well within the domain of the normal. One's opinion of the first sound may be influenced by its faintness, its brevity, its absence, or its reduplication. If it is quite faint one might feel, if in keeping with other signs and symptoms, that the heart is weak and dilated; if it is brief and "flappy" that the ventricular walls are thin; if absent, that valvular disease exists; if reduplication exists that the auriculo-ventricular bundle leading to the right ventricle is damaged or that contractility and conductivity on right side is not as normal as on the left side or *vice versa*.

The second sound is produced by the closure of aortic and pulmonary valves. An accentuation of the aortic element of the second sound may be taken as an indication of increased aortic pressure; pulmonary second sound accentuation may indicate obstruction to circulation through the lungs. This sound may be increased in mitral stenosis; in this lesion it possesses peculiar significance.

Heart Murmurs.

Heart murmurs no longer, in the minds of clinicians, retain the position of importance formerly held. Every murmur does not necessarily invalidate the heart. A heart may be quite normal in its function and yet along its base or at its apex a soft systolic murmur may be elicited. There are so-called functional murmurs and organic murmurs. A functional murmur may occur constantly or intermittently, in the heart systole as a result of dilatation or relaxation of the muscular structure of the heart. This may follow from a number of causes, chief among which are strain, infection which has produced some loss of tonus or degeneration in the heart muscle, or anemia. In such cases, at the apex, auscultation may detect soft systolic murmurs, indicating regurgitation of blood during contraction of the ventricles: leaking of blood into the auricles.

Functional murmurs are often heard in young hearts from various causes.

There are "relative murmurs" also, which are in hearts with organic lesions but these murmurs are found at orifices which have undergone, in the process of decompensation, dilatation so that regurgitation takes place during systole over otherwise normal valves. These murmurs are secondary and indicate a failing heart. Then, there are so-called organic murmurs and they are heard in hearts in which endocarditis from infection has occurred or in which sclerotic fibrosis has taken place producing roughened and beaded surfaces, preventing complete closure or producing stenosis or a combination of obstruction and regurgitation in the same orifice. These murmurs are of particular importance and indicate the location of the disease in the heart. But murmurs alone by quality and

time cannot be relied upon in making up a clinical judgment of the heart's efficiency. They should be considered in connection with the size, rate, rhythm of the heart and the various other signs in the vascular system and organs. Estimations of the real significance of murmurs is a matter of careful examination of the heart in connection with signs and symptoms within and without the heart. The writer has observed hearts for ten to fifteen years with marked murmurs, and, while the murmurs are as pronounced today as years ago, the hearts are functioning well and give little if any evidence of failing in function.

Potain (quoted by Hirschfelder) gives the following points worth remembering in differentiating organic from functional or accidental murmurs in mitral and aortic orifices. In mitral insufficiency, the murmur is holosystolic, usual rough, maximum at the apex. The cardio-pulmonary (functional) murmur has its maximum two or three centimeters lateral wards from the apex, associated with systolic retractions, and soft in tone.

In aortic insufficiency the murmur commences exactly at the beginning of the second sound and almost entirely fills diastole. The functional murmur follows the second sound and varies in position and is unassociated with gross heart changes.

Breathlessness.

This sign of heart weakness may be ranked at once as among the most important. A weak heart and breathlessness, when associated, portend a serious condition. Failure to send sufficiently aerated blood to the respiratory centers induces breathlessness. Of course, it is not to be inferred that all breathlessness means always a weak heart because many other factors may induce breathlessness and a cardiac study must be made to determine whether or not breathlessness and cardiac weakness are associated. Blood states, diseases of the kidneys, mechanical conditions in the lungs and pleurae may be at work to produce shortness of breath while the heart may be in good function.

In heart disease breathlessness on exertion must be seriously considered, although patients may be shortwinded without being in a critical situation. On exercise, the cardiopath may well be considered in poor condition who suffers pronounced shortness of breath. This sign may be given the cardiopath as one for his guidance. He may rightly be told that shortness of breath during any exertion should serve as a sign that he has gone a little too far and to assume a position whereby he may as quickly as possible be relieved of breathlessness. While breathlessness on exertion is significant of heart exhaustion, breathlessness at rest is compelling in its significance of an extreme exhaustion. Of course, other factors which bring about orthopnea should always be eliminated,—factors such as asthma, pleurisy with effusion, emphysema, hydrothorax, uremia.

"Breast Pang."

The pain over the left side of the chest spreading to the inner side of the upper and fore arm, the peripheral distribution of the lower cervical nerve and the upper 3 or 4 dorsal nerves, is an exremely significant sign of heart disease. The breast pain may vary very much in intensity. The very intense pain will necessarily receive, if time affords, every attention from the doctor. The shock and alarm and the agony inflicted make the patient seek succor. But, sometimes, equally important is an indefinite and dull substernal pain. Such patients with chronic myocarditis may be in imminent danger of death. Physicians rarely, it is feared, attach a proper degree of importance to these cases. Watch for the dull aching pain in the chest of the patient with high blood-pressure or with a very low blood-pressure.

Two Cardiac Irregularities.

Auricular fibrillation is a condition in which the sino-auricular node has ceased to control and the auricles are in a state of constant tremulous contractions without adequate power, and the action of the ventricles is disassociated making strong and weak contractions. The ready recognition of this most common arrhythmia is highly important to every doctor. Nearly all of the serious heart cases suffer from fibrillation of the auricles. In this situation, digitalis is the soverign drug and it acts with spectacular and salutary effect. Many of higher fibrillating auricles may show a radial pulse approaching normal although irregular. The auricles may make feeble con-

tractions at 160 per minute while the ventricle may succeed in making 90 or less. Look out for auricular fibrillation.

Auricular Flutter is a rare muscular irregularity of the heart and Lewis has classified auricles contracting at 200 per minute as in a state of flutter. For this condition graphic records are quite necessary in order to make accurate diagnosis.

Virginia's Physician-General In the Revolution.

(*Continued from page* 393.)

About July 3, 1775, when George Washington, who had been elected by the Second Continental Congress Commander-in-Chief of the continental army only two weeks previously, assumed command of American army on the common at Cambridge, the first Medical Director of the United States was already engaged in the task of providing for wounded and sick soldiers. This Surgeon-General and Director of Hospitals, was Dr. Benj. Church of Massachusetts. Dr. Church was a prominent man of the time. He was a member of the House of Representatives of Massachusetts, he was one of the Committee, appointed by that body to receive and conduct General Washington to his command, General Washington arriving in Boston from Philadelphia, where he had been serving as a delegate from Virginia in the Second Continental Congress. Dr. Church's career soon terminated in ignominy. He was convicted of treason. Letters, written by him in cipher and carried by a woman, were found to be filled with information describing to the enemy the American forces and position. Dr. Church, after conviction and dishonorable discharge, fled the country and died at sea.

In October 1775, about four months after this, the second Medical Director took charge of the Medical Department of the Revolution, and endeavored to organize the medical men and equip the hospitals. This was Dr. John Morgan of Philadelphia. He joined the army and assumed charge in the vicinity of Boston. And the story of the effort at the development of the medical department of Continental army by Dr. Morgan is one of the greatest interest which should thrill the heart of every medical man of this country, as the hardships and disastrous story of military efforts of that brave and heroic body of Americans has always fired the soul of Americans. Dr. Morgan worked diligently and laboriously against untold and insuperable difficulties and obstacles. Supplies were altogether crude and inadequate, and ignorant, untrained, jealous, subordinate regimental surgeons produced a chaotic condition in the hospital and medical service.

The blame for the failure of this period in the history of the medical department of the Revolution should not be placed at the door of Dr. Morgan because he appears to have been diligent and faithful, struggling against unconquerable adversities. Every conceivable difficulty harassed not only the medical department but also the general military service as well, and as a result all through the months of 1776, from February to December, the year was one of disaster. The details are somewhat outlined in one of Morgan's letters describing the hospital about New York. He wrote, "I am well off in the general hospital, except in a few particulars. I have provided ten thousand bandages, have some hundred sheets and a stock of medicine (though unassorted). I have capital instruments nearly enough for hospital use. But in the meantime what is to become of the regimental surgeon? Should I divide my stores among them they would be dissipated and ourselves left destitute. To observe a medium I have ordered to be issued from the general hospital stores, sixty bandages, two sheets, four tourniquets, a quantity of lint and tow and a chest of medicines. But of instruments I have none to spare, and I begin to want capital medicines. Moreover symptoms of a putrid (typhus) fever begin to appear."

And to think the army at this time consisted of forty regiments! How pathetic the letter of a medical director facing the ravage of a putrid fever! So lamentable were the military efforts of the continental army during the New York campaign, 1776, and so correspondingly inadequate the medical service under Dr. Morgan, that a reorganization of the medical department was effected by which Congress directed that Dr. William Shippen, Jr. of Pennsylvania be (Oct. 9, 1776) appointed and that jurisdiction be divided giving Dr. Morgan control of hospitals east of the Hudson and Dr. Shippen control of those west of the Hudson. About this time, in fact coincident with this

change, the celebrated organization known as the "Flying Camp" of the Revolution was created. It was composed of troops from Pennsylvania, Delaware, Maryland and Virginia comprising in all about ten thousand soldiers. This force was put into the field, under the command of General Hugh Mercer, a Virginia physician from Fredericksburg. Under General Mercer, in the capacity of Medical Director was Dr. William Shippen, Jr., of Philadelphia, and Dr. William Brown of Alexandria, Va., assistant Medical Director (Sept. 20th, 1776). In January 1777, General Mercer was killed at Princeton.

In the spring of 1777 a general and more complete reorganization of the Medical Department was undertaken by the Congress. And on April 11th, 1777, Dr. William Shippen, Jr., was made Surgeon General and under him three departments were created; the Northern, from Boston to the Hudson, the Middle, from the Hudson to the Potomac; the Southern from the Potomac to South Carolina. Each of the departments were commanded by a Physician General.

The culmination of this year of distress was "Valley Forge"; for, in the winter 1777-78, Washington's army (11,800) encamped at Valley Forge, 24 miles west of Philadelphia. The English were in possession of Philadelphia; the Congress of the United States was in session at York in western Pennslyvania; Washington chose the spot on the banks of the Schuylkill, sheltered by hills, in order to protect Congress. Here the army erected a crude log camp on a more or less military plan and, with fortitude, patience and bravery withstood the privations of hunger, extreme cold and exposure during the long hard winter months. (Int. Encyclopaedia).

The troops braved the winter in their tents until they were able to cut down trees and make log huts for their habitation during the rigorous snowy weather of that winter. The huts were fourteen feet by sixteen, the logs plastered with mud and erected six feet and a half high. The roofs were made of log slab plastered with clay. The fire-places were made of logs and mud. The huts for the troops were formed on streets and those for the officers were placed in a line to the rear. In each hut there camped twelve soldiers and a non-commissioned officer. A general officer, staff officers of brigades and regiments and field officers of regiments, each had a hut. This formed the military village or camp of Valley Forge.

General Washington's letter (Dec. 23, 1777) to Congress then at York, Penn., recites, under the effect of criticism and abuse of his contemporaries both in army, congress and public life, vividly the story of Valley Forge. Washington wrote, "Though I have been tender, heretofore, of giving any opinion or lodging complaints, as to charge that commissary department (commissariat) took place contrary to my judgment and consequences thereof were predicted; yet, finding that the inactivity of the army, whether for want of provisions, clothes or other essentials, is charged to my account, not only by the common vulgar but by those in power, it is time to speak and explain in exculpation of myself. With truth, then, I can declare that no man, in my opinion, ever had his measures more impeded than I have by every department of the army. Since the month of July we have had no assistance from the quarter-master general; and to want of assistance from this department the commissary-general charges great part of his deficiency. To this I am to add that notwithstanding it is a standing order, and often repeated, that the troops shall always have two days provisions by them that they might be ready at any sudden call yet an opportunity has scarcely ever offered of taking an advantage of the enemy that it has not been either totally obstructed or greatly impeded on this account."

Such was the state of distress and disorder when Virginia's representatives assumed command of the Medical Department of the Middle zone from the Hudson to the Potomac. Here it was in Jersey and Pennsylvania that the campaigns of 1777-80 were fought. Upon the Virginians to be briefly mentioned in biographical sketches fell the duty of directing the medical services and the hospital. Little is obtainable of the details of their efforts, but it is a pleasing reflection to think of their work in the medical department as free from criticism and court marshals so far as records investigated disclose.

As well as can be stated Dr. Benj. Rush was appointed July 1777 Physician-General of the Middle Department. Dr. Rush became in-

volved in the "Conway Cabal", a conspiracy of the officers in high command against General Washington. Dr. Rush was an ardent partisan of General Gates who attempted to supplant General Washington in this dark hour of America's fortunes. With the downfall of the cabal, Dr. Rush resigned. Dr. Walter Jones of Virginia, it maybe, preceded Dr. Rush serving in the capacity of Physician-General only two months. Upon Dr. Rush's resignation, Dr. William Brown of Virginia was appointed and following him Dr. James Craik, General Washington's friend and physician, assumed charge.

Walter Jones, M. D., 1745-1815, born in Northampton County, Virginia, was educated at William and Mary College, graduating in 1767 and studying medicine at, and graduating M. D. from the University of Edinburgh, in 1769, the subject of his thesis being "De Dysenteria". He is said to have been held in high esteem by Cullen and his other professors, and was described as "the most shining young gentleman of his profession in Edinburgh, and one who would make a great figure where ever he went". He settled and practiced in his native county and maintained the high standing as a physician and a scholar, and on April 11th, 1777, received the appointment from Congress of Physician-General to the Hospitals of the Middle Department, but held the position only two months resigning the first of July following. He was elected to and served in Congress in 1797-99 and in 1803-11.

It was said of him by an intimate acquaintance that "for the varied and intent of his learning, the originality and strength of his observations and captivating powers of conversation he was one of the most extraordinary men he had ever known. He seemed to possess instinctively the faculty of discovering the hidden cause of disease and applying with promptness and decision peculiar to himself the appropriate remedy". He left one son, Walter, when he died on his plantation in Northumberland County, Va., on December 31, 1815.*

William Brown, M. D., (1747-1792) of Alexandria, Va., was born in Scotland, his parents temporarily residing in Scotland at the time of his birth, at Haddingtonshire, where his grandfather had left an entailed estate. Dr. William Brown was the grandson of Dr. Gustavus Brown (1698-1750?) of Rich Hill, near Port Tobacco, Maryland, and the son of the Rev. Richard Brown of the Colonial and Established Episcopal Church. Dr. Wm. Brown graduated with the degree of M. D. in 1770 at the University of Edinburgh; the subject of his thesis at graduation being "De Viribus Atmosphaerae". This was written in Latin. Settling in Alexandria, Va., upon his return home, he soon attained a high professional rank and being a man of culture and polished manners, became intimate with many of the leading men in statesmanship of the day, and among them Washington, Jefferson and Madison. At the beginning of the Revolution 1775 he entered the service of his country as a surgeon to Colonel Woolford's regiment (2nd Virginia Regiment) of Virginia troops. On the twentieth of September 1776, he was elected by the continental Congress assistant to Dr. Wm. Shippen, Jr., a chief physician of the continental army. Upon the recommendation of Dr. (General) Hugh Mercer, who was killed in the battle of Princton, January 31st, 1777, he was elected by Congress, February 7th, 1778, to be physician-general of the middle department in place of Dr. Benj. Rush. Dr. Brown resigned this commission on July 21st, 1780, returning to private practice after serving five years in Revolutionary army. On his resignation Congress passed the following resolution. "That Congress entertains a high opinion of the ability, integrity, and past services of Dr. William Brown, Physician-General, but as circumstances will no longer permit his continuance in the service, his resignation is accepted."

In resigning from his regiment to take service as assistant to Dr. Shippen he forfeited his right to pay in bounty lands, which required three years of continuous service in the troops of the State of Virginia but, so highly were his services esteemed, the General Assembly of Virginia made an exception in his case and decreed that he should receive the pay due him, and also, that he should be entitled to the bounty of land allowed surgeons of regiments raised under the authority of the state (Hening's

* From Kelly: Cyclopedia of American Medical Biography. Vol. II, page 58.

Statues, Vol. VI). While and during the encampment of the Revolutionary forces under General Washinton at the Valley Forge, twenty miles west of Philadelphia, at a place named Lititz, Lancaster County, Pennsylvania, Dr. Brown wrote in 1778 the first Pharmacopeia published in the United States of America. The hospital of the United States Army that winter, located in Lititz, Lancaster County, Pennsylvania, was in a building at present (1884) occupied by the Lititz Academy, formerly the Brothers' House. A number of soldiers who died there were buried near this town.

The Pharmacopeia is written entirely in Latin. It consists of 32 pages. The following English translation of the title page and the preface, made by Professor Nevin, of Franklin and Marshall College, is interesting.

"Repertory"
of
Simple and Efficacious Prescriptions,
For the use of the
Military Hospital
Belonging to the Army
of the
United States of America
Adopted especially to our present state of need and poverty, which we owe to the ferocious cruelty of the enemy, and to a cruel war brought unexpectedly upon our fatherland.
Wm. Brown, M. D., Author
Second Edition
Philadelphia
From the office of Charles Cist
"1781."

"With an asterisk are denoted such prescriptions as ought to be prepared and compounded in the general laboratory, the others are to be mixed for the occasion at the office of the hospitals. There are very many prescriptions of medicines, solid and dry, which might be afforded, more convenient for use, at any rate, more elegantly, in a liquid form, were there not wanting for this a sufficiency of phials; and all such preparations as are less efficacious or for patients made use of only for the sake of elegance, such, as simple waters, etc. and various plasters and unguents hardly necessary or useful, from the inconvenience of transportation, it is our desire to avoid. Lititz, March 12th, 1778."

Following are a group of prescriptions taken from this work:

37. Infusum Sennæ

Rec. Fol. Sennæ Semuncian
Fruct. Tam unc. I vel
Pulv. Cream tartar. semunciam.
Aquæ bullieutis lib I
Infunde per horam, et cola
Pro una dosi unc. Iv quaque semi-hora
Sumendae ad alvi solutionem.

48. Pilulae Antimonioles cum Mercurio

Rec. Tartar Emetic drachm i
Calomel ppt. drachm ii
Syrupi Q. S.
Formetur massa in pilulas 120
Dosis I Omni nocte; vel bis terve die.

56.
Pilulae Foetidae cum aloe

Rec. Gum. asal foetid. Scrupul i
Aloes succotrim gr. v
Mucilog. gum. arabic Q. S.
Formetur massa in pilulas 4

Doses a ii ad iv — utenda in gravi Stomachi flatulentia cum alvi constipatione, quae alequando in febre maligna et castrensi ocurrit, ad flatum deorsum expellendum

77. Pulvis Scelliticus Nitrosis

Rec. Pulvscillae andae drahm i
Salis nitro drachm iiss
Piperis Jamaicensis drachm ss m
Dosis a gr. v ad gr. xv. ter quarterve die.

Dr. Brown resided in Alexandria after the Revolution and practiced his profession there up to the time of his death. He was one of the charter members of the Society of the Cincinnati in the State of Virginia which was organized in the city of Fredericksburg in the year 1783. He married his first cousin Miss Katherine Scott, daughter of Rev. James and Sarah Brown Scott, and they had nine children, six daughters and three sons:—William, Richard and Gustavus. Richard and Gustavus became physicians and practiced in Alexandria for years, while William studied law in Richmond.

Dr. William Brown died in January 1792 and was buried at Preston, the Alexander Estate, near Alexandria, Virginia.*

James Craik M. D. (1730-1814). This Physician-General was born at his father's country seat, Arbigland, near Dumfries, Scotland, and studied medicine at Edinburgh, emigrating to the North American Colonies and prac-

* From Kelly: Cyclopedia of Medical Biography.
Private Papers in the hands of Alexander Gustavus Brown, Jr., M. D. Richmond, Va.
Reprint First Pharmacopeia Published in the United States. Reprint from American Journal of Pharmacy (1884).

ticing medicine first in the West Indies and later in Virgina, where he formed a connection with the young planter and surgeon, George Washington, and established a friendship disturbed only by the death of Washington. He was appointed surgeon of the Virginia Provincial Regiment in 1754, of which Washington held the command and was present at the battle of Great Meadows and also at Monongahela, where he dressed the wounds of the ill-fated Braddock and many others. At the close of the Braddock campaign upon the formation of the Virginia Provincial army Craik continued in the service as the chief medical officer and remained in the service until the disbandment of the forces at Fort Pitt, 1758. During the time that he practiced medicine in Charles County, Maryland, Washington and he continued their intimacy and made famous exploring trips into the West which were noteworthy even in those adventurous days. An active patriot in early Revolutionary times, he became assistant Medical Director of the hospitals of the Middle Department at the solicitation and special nomination of Washington, and organized the Medical Department of the forces, in Comt Rochambran, becoming junior of the four chief army hospitals, physicians and surgeons taking the seniorship second in rank to the director general. This position he held until mustered out at the end of the war in 1783, after personally participating in many of its most important events including the capitulation at Yorktown. Through his agency the "Conway Cabal" against General Washington was exposed.

Shortly after being mustered out at the close of the Revolutionary War, he took up his home at Alexandria in order to be near his friend's Mount Vernon home, until 1798, when war with France seemed inevitable and Washington was again summoned to lead the army. But he made the appointment of Craik as the head of the medical department one of the conditions of his acceptance of the command, and the latter was duly commissioned Physician-General, retaining the office until the army was disbanded in 1800. Some months before the official severing of his relations with the military establishment, however, he had returned to his Virginia home where he was soon called upon to attend his old friend in that illness which, on December 14th, 1799, deprived the country of its most illustrious citizen. Craik survived him fifteen years, a time passed partly in active practice and at the last in retirement. (L. S. P.)*

(*To Be Continued.*)

News Notes

The Tri-Sate Medical Association of The Carolinas and Virginia

Will hold its twenty-third annual session in Spartanburg, S. C., February 16 and 17, 1921, with headquarters at Hotel Cleveland. The program, which is more than half completed, shows papers of wide scope and of unsual excellence. A few guests of international reputation will be among the speakers.

Dr. Baxter Haynes, of Spartanburg, is chairman of the local committee of entertainment. The local medical society and the Chamber of Commerce are preparing for the entertainment of those in attendance. A number of reservations have already been made at Hotel Cleveland and it is suggested that those expecting to attend should make reservations as soon as possible.

The secretary-treasurer, Dr. James K. Hall, of Richmond, Va., and the president, Dr. John P. Munroe, of Charlotte, N. C., have begun an active campaign to increase the membership of the Society. Members in good standing of the medical societies of the states of Virginia, North Carolina and South Carolina, are eligible to membership in the Tri-State Association. Those desiring to join should send application to either of the above named officers.

Other officers of the Association are:—Vice-presidents, Drs. John A. Williams, Greensboro; W. W. Fennell, Rock Hill, S. C.; and H. S. Hedges, Charlottesville, Va. Members of the Executive Council are:—Drs. M. O. Burke, Richmond; F. M. Hanes, Winston-Salem; F. H. McLeod, Florence; W. O. Spencer, Winston-Salem; Jas. K. Hall, Richmond; Julius H. Taylor, Columbia, S. C.; Chas. A. Mobley, Rock Hill, S. C.; W. L. Peple, Richmond; J. P. Matheson, Charlotte.

* From Kelly: Cyclopedia of American Medical Biography.

Opium Smuggling Plot Nipped in Bud.

What was believed to be a plot of enormous proportions to smuggle opium into the United States was caught up with in Norfolk, Va., November 29, when fifteen Chinese seamen were arrested with a very large quantity of the drug in their possession. Nine of the Chinamen were arrested as they were leaving the Britsh steamer Iver Heath, and the other six were apprehended as they were about to board a train for New York. They were carrying the opium in their hand baggage and trunks.

A member of the crew, Chue Foo, who secured a launch and carried his countrymen ashore, stated that he had been employed to conduct the men to New York where they were to ship on a Chinese vessel. Customs officers were of opinion that the opium was intended for distribution in New York and an effort is being made to connect this smuggling with an opium ring that is believed to exist in this country.

A bond of $16,000 was required of the owners of the ship and the case against the Chinamen was continued to give customs officials opportunity for further investigation.

Tuberculosis Foundation of Virginia

Perpetual fight on tuberculosis is the chief claim for public support advanced by the Tuberculosis Foundation of Virginia, for which a State charter has been issued and which has taken up at Catawba Sanatorium the work specified in its articles of incorporation.

For about five years there has been at this sanatorium an organization of patients and former patients, known as the Catawba Sanatorium Alumni Association. The Association had for its primary purpose the provision of funds for the sanatorium care of indigent consumptives from all parts of the state, but the fund for this purpose was so small that at times it was impossible to take care of as many as were worthy.

The Tuberculosis Foundation was incorporated for the purpose of providing a permanent fund for the relief of these cases. It is provided that such funds as may be entrusted to the Foundation shall be invested in perpetuity, and only the interest shall be used. It is hoped that the size of the fund may later permit an extension of the work. For further details write A. Lambert Martin, business manager of Catawba Sanatorium, who is secretary-treasurer of the Foundation.

Married—

Dr. Edward Latane Flanagan and Miss Louise Williams, both of this city, November 23.

Dr. Edward Sandidge, of Amherst, Va., and Miss Vera Tignor, of Portsmouth, Va., November 27.

Lt. Joseph Campbell Bennet, U. S., M. C., retired, and Miss Virginia Hansbrough Iden, daughter of Dr. and Mrs. B. F. Iden, of Manassas, Va., November 24. Dr. Bennet is from Brunswick, Ga., but in the early Spring, he and his bride expect to locate in Manassas, Va.

Dr. Joseph Anderson Speed and Miss Gladys Hunt Gorman, both of Durham, N. C., November 10.

Dr. J. Alexander Lipnick and Miss Ruth A. Berlin, both of Norfolk, Va., October 7.

In Hall Of Fame.

Dr. William Thomas Greene Morton, the discoverer of anesthesia, has been elected to a place in the Hall of Fame. He was first a dental surgeon and later a physician. Morton called his discovery letheon but it is now known as ether. It was first used publicly in the Massachusetts General Hospital, in the fall of 1846 by Dr. J. C. Warren, whom Morton told of his discovery.

Of the 178 names voted on this year for the Hall of Fame, seven were chosen, and it is interesting to note that Samuel Langhorne Clemens (Mark Twain) and Morton received the largest number of votes—72 each.

Norfolk County Health Board.

In the re-organization of the Norfolk County, Va., Health Board, Dr. Thos. A. Mann, formerly of Durham, N. C., has been appointed health officer of Norfolk County. Other members of the Board are Drs. A. M. Burfoot, Fentress; A. G. Horton, Ocean View, and Josiah Leake, Churchland.

The Rural Clinic

Has been adopted by the New York State Department of Health in several communities and results have been good. The plan was adopted as a result of the large number of men from rural districts who could not qualify for military service and the equally large

group who, on account of physical unfitness, became a ready prey for disease and epidemics. Specialists in all branches of medicine are sent to the center in which the clinic is to be held and all of the modern apparatus used in the diagnosis of disease, including the X-Ray, is used. The plan is simply to diagnose the disease with which the patient is suffering, leaving it to the family physician to carry out the proper treatment. Often the diagnosis of the local physician is confirmed and this confirmation makes it easier for him to secure the cooperation of his patient. The number of patients consulting these clinics often varies from 200 to 300 a day.

Dr. and Mrs. Raymond W. Paul,

Of South Richmond, have returned home after a motor trip to Roanoke, Va., where they went to attend the V.M.I.—V.P.I. foot ball game.

Retreat For Sick Opened.

The new Retreat for Sick, on Grove Avenue and Mulberry Street, in this city, has been opened and patients able to be moved were transferred to the new quarters on November 29, and others have been moved as their condition permitted. This is the oldest nonsectarian general hospital in the South, having been established in 1879, and in its long history has given more than 100,000 days of free treatment to those unable to pay. It is open to all creeds and races and every reputable physician and surgeon in the city is permitted to practice there. It is thoroughly modern and can accommodate 110 patients. There are about forty private rooms and wards for men and women, white and colored. A nurses' home adjoins the hospital. Miss Virginia Flippo will continue as superintendent and has thirty-five nurses to assist her.

Dr. John Hunter Selby,

Who was located in Washington, D. C., prior to entering the medical service of the army, has just received his discharge and, after January 1, 1921, will be located in the Second National Bank Building, Akron, Ohio.

Dr. Jeter R. Allen,

Who has for some years been located at Golansville, Va., has moved to Marshall, Va., where he will continue the practice of his profession.

Dr. E. C. Levy,

Of this city, qualified on the second of this month for his new term as director of public welfare of Richmond and furnished the necessary bond.

Dr. J. Fulmer Bright,

Richmond, has succeeded Col. Wm. H. Gill in command of the First Regiment Infantry, Virginia National Guard, and also has the rank of colonel.

Principal Causes of Death.

According to the Census Bureau's annual bulletin on mortality statistics for the death registration area in continental United States, to be issued shortly, there were 1,096,436 deaths in 1919, or 12.9 per 1,000 population. This is the lowest rate recorded in any year since the establishment of the registration area and was in striking contrast to the unusally high 1918 rate of 18 per 1,000, due to the pandemic of influenza. Diseases contributing most largely to the cause of death were in the order of their incidence, organic diseases of the heart, tuberculosis (all forms), and pneumonia (all forms).

The death registration area in 1919 comprised 33 states, the District of Columbia, and 18 registration cities in non-registration states, with a total estimated population of 85,147,842, or 81.1 per cent of the estimated population of the United States.

Seabcard Medical Association.

As we go to press, the Seaboard Medical Association of Virginia and North Carolina is holding its twenty-fifth (semi-jubilee) session at Elizabeth City, N. C., under the presidency of Dr. Cyrus Thompson, of Jacksonville, N. C. Dr. Clarence Porter Jones, of Newport News, Va., is secretary. The program shows a number of interesting papers by prominent doctors from the Carolinas and Virginia.

Dr. Williams Reappointed Health Commissioner.

Dr. Ennion G. Williams last month received his comission for reappointment as State Health Commissioner of Virginia for four years, effective July 1, last. Dr. Williams has held this office continuously since its creation twelve years ago and his work has gained nation-wide recognition.

Dr. E. L. Sikes,

Who was formerly connected with the Blackwood Coal and Coke Company, at Pardee, Va., has moved to Wise, Va., where he is doing private practice.

Dr. A. M. Byrd,

Until recently of southwest Virginia, is now at Warm Springs, Va.

Dr. H. V. Johnston,

Formerly of Princess Anne C. H., Va., is now connected with the U. S. Public Health Service, and is located at 26 Franklin Street, Northeast, Washington, D. C.

Interneship In Army Hospitals.

Circulars have recently been sent the State Medical Associations relative to requirements for securing appointment as interne in army hospitals and also giving information relative to appointment as first lieutenant in the medical corps of the regular army. Army life has its attractions for many and there are constantly vacancies to be filled. Detailed information about either appointment may be secured from the Surgeon General, U. S. Army, Washington, D. C.

Internesh̄ips in army hospitals are offered only to recent graduates of Class A medical schools. The age limit at present is 32 years. The pay is $60 per month with rations, quarters and necessary travelling expenses. The interne has the status of a civilian and is not subject to military law except as it applies to other civilian employees of the Medical Department.

X-Ray Burns Charged As Malpractice.

The Associated Press tells of a case recently tried at White Plains, N.Y., in which a woman was awarded a large amount for burns she suffered under X-Ray treatment. The doctor admitted the burns were due to the X-Ray, but stated that the patient proved to be unusually sensitive to the rays. The jury decided he was guilty of malpractice.

Apropos of X-ray burns, Dr. Charles Infroit, an X-ray specilist of Paris, died recently as a result of burns sustained in 1898, when one of his hands became infected as a result of the constant use of X-ray. Since that time he has undergone twenty-four operations, the last being on August the first of this year.

Association of S. A. L. Surgeons.

The Association of Surgeons of the Seaboard Air Line Railway, at their annual meeting in Savannah, Ga., this month, selected Birmingham, Ala., for the 1921 place of meeting, and elected Dr. H. C. Dozier, Ocala, Fla., president, and re-elected Dr. J. W. Palmer, Ailey, Ga., secretary-treasurer.

Dr. D. Hunter Marrow,

Formerly of Union Level, Va., is now at 113 Live Oak Avenue, Daytona, Fla.

Dr. F. M. Nichols,

Recently a member of the staff at Purcellville, Virginia, is now at Glenwood, N. C.

Dr. Matas Succeeds Dr. Dyer.

At a recent meeting of the Board of Trustees of the American Medical Association, in Chicago, Dr. Rudolph Matas, of New Orleans, was elected to succeed the late Dr. Isadore Dyer as a vice-president of the Association.

Dr. George H. Barksdale,

Charleston, W. Va., was elected president of the West Virginia Tuberculosis Association at their annual meetng, held recently.

Quarantine For Venereal Diseases.

According to *Public Health Reports*, the First District Court of Appeals of California has upheld the right of a local health officer to detain and quarantine persons venereally infected. The case in question was that of a woman held in quarantine because of being infected with venereal disease. Habeas corpus proceedings were instituted for the woman's release, but the court held that health authorities had the power to isolate venereally infected people.

Venereal Diseases Reported.

Public Health Reports states that during the months of July, August and September, 91,195 cases of venereal diseases were reported to the State boards of health. This was an increase over the preceding three months of 21,781 or about 31 per cent. This however, is not considered as indicating an increase in the prevalence of venereal diseases, but is the result of better reporting on the part of physicians.

Spain Overrun By Doctors.

From the *Medical Record* we note that for-

eign practitioners, particularly Austrians, have invaded Spain in such numbers, that native physicians and surgeons have appealed to the government to take steps toward making it obligatory for foreign practitioners to acquire a medical degree in Spain before being permitted to practice there.

The Far Eastern Association Of Tropical Medicine

Will hold its fourth congress at Batavia, Java, in August 1921. The president of the congress is Dr. W. Th. de Vogel, head inspector of the Civil Medical Service, in Batavia. The third congress of this association was held in November 1913 at Saigon, in Indo-China.

The Southern Medical Association,

At its meeting in Louisville, Ky., in November, elected Dr. J. L. Crook, of Jackson, Tenn., president; Drs. E. Bates Block, Atlanta, Ga., and Geo. A. Hendon, Louisville, Ky., vice-presidents; and re-elected Dr. Seale Harris, Birmingham, secretary. The next meeting will be held at Hot Springs, Ark.

T-B Vaccines.

According to the daily press, Dr. Albert Calmette, of the Paris Pasteur Institute, is working on a vaccine with which he expects to cure and prevent tuberculosis in man. The French government has such confidence in his work that it is backing him financially. The experiments are being carried out on a certain kind of ape.

Rural Virginia Needs More Doctors.

In five counties in Virginia, it is announced that there are three thousand or more people to each doctor. The cities, especially Richmond and Norfolk, are well supplied. The doctors in the State are not distributed in such a way as to best meet the needs of the people, so the State Health Department urges the need of preventive medicine and the necessity of making country life more attractive to the physician.

Dr. George E. Barksdale,

Who has been serving in the medical corps of the U. S. army for several years, has just returned to this city, where he will resume the practice of medicine. Temporarily, he will be located at 110 North Colonial Avenue. He has recently been on duty at Camp Zachary Taylor, Ky., and Camp Dix, N. J.

Dr. John C. Phipps,

Formerly of Monarat, Va., is now located at Hudson Heights, Edgewater, New Jersey.

Dr. and Mrs. Fred M. Hodges,

Of Richmond, have been recent visitors at Pinehurst, N. C.

Culpeper to Have a Hospital.

Drs. Otis Marshall and J. W. Humphries, of Culpeper, Va., have bought a lot in that place for a proposed hospital site.

Dr. C. D. Kunkel,

Pulaski, Va., has returned home after enjoying a hunt with a party of friends in Pittsylvania County, Virginia.

Two Physicians Hurt in Auto Collision.

Early this month Drs. Elton A. Ratcliffe and Lazarus Karp, both of this city, were injured in an automobile collision while hurrying to a patient. Both doctors were taken to a hospital. Dr. Ratcliffe was soon able to go home, but Dr. Karp remained a few days for observation of his injuries.

Dr. W. B. McIlwaine

Was in temporary charge of the Petersburg, Va., Health Department during the recent absence of Dr. R. A. Martin, who attended the All-America Conference on Venereal Diseases held in Washington, D. C.

Dr. J. M. Bland,

Of Boykins, Va., recently visited his old home in West Point, Va.

Dr. W. Lowndes Peple,

Of this city, made a short talk on the meaning of the Armistine Day to those actually engaged in the conflict and the abiding significance of its observance at the Armistice Day exercises at Collegiate School for Girls, Richmond, November 11.

Dr. Harry Wall,

Of Norfolk, Va., has recently been awarded a commission as captain in the medical corps of the regular army, as a result of the October examinations.

Salvarsan Fakes

Is one of the subjects that came up for discussion at the All-America Conference on Venereal Disease, held in Washington, early this month, according to a bulletin issued by

the U. S. Public Health Service. "Salvarsan (606) was devised by Ehrlich in 1910 after 605 unsuccessful experiments in trying to find a preparation of arsenic that would kill the germs in the patient's blood wthout also killing the patient. It was carefully protected by patents taken out in Germany and elsewhere, which enabled enormous prices to be charged for it. During the war inability to import it from Germany, where it was chiefly manufactured, caused the United States to seize the patent rights and to authorize manufacture in this country."

The name "arsphenamine" was adopted in an effort to standardize the drug and to prevent the sale of worthless substitutes, and licenses for its manufacture were granted by the Treasury Department to all persons complying with certain conditions. All products manufactured by the firms working under these licenses are inspected and tested by the U. S. Public Health Service. However, there seems to be no law to prevent the manufacture of substitutes bearing other names and claiming to obtain the same results. It is against these that the fight is directed.

Fire at Hospital.

In a fire which practically destroyed two wards of the U. S. P. H. S. Hospital at Camp Sevier, S. C., on the night of November 30, sixty-eight soldier patients had a narrow escape, but aided by nurses and Red Cross workers, all were moved to a place of safety and no one was reported injured.

Red Cross Clinic at Woodstock.

A Red Cross Clinic was held at Woodstock, Va., December 1 and 2 for the purpose of removing the tonsils and adenoids of the pupils of the Shenandoah County schools, in cases where operations were deemed necessary. Dr. P. W. Boyd, of Winchester was in charge and he was assisted by local physicians and nurses from the Memorial Hospital in Winchester.

Dr. R. C. Fravel

Has returned to his home in this city after a visit to his parents in Woodstock, Va.

Dr. E. W. Buckingham,

Of Lynchburg, Va., sailed from Vancouver, B. C., on December 7, for China, where he has gone as a medical missionary. He expects to spend six months in a language school before taking up his hospital work.

Dr. F. W. Lewis,

Of Morattico, Va., was a recent visitor in this city.

Pharmacy Board Revokes Licenses.

The Virginia State Board of Pharmacy has revoked the licenses of two registered pharmacists: one of these was on the charge of dispensing liquor in violation of the prohibition laws and the other was on the charge of being an habitual user of drugs.

Dr. Emory Hill

And son of this city, recently visited at the home of the doctor's mother in Scottsville, Va.

The Winchester (Va.) Memorial Hospital

Treated a total of 1,429 patients during the fiscal year ended November 25. The operating expenses were nearly $43,000 and it cost $3.15 a day for each patient, although some are charged at the rate of only $2. a day.

Correspondence Course for Teachers.

A correspondence course for teachers, to train them in a physical inspection of children and enable them in turn to impart physical instruction to their charges, has been instituted by the State Health Department. This course has been made virtually necessary under the provision of the "West" bill which looks to a time in the near future when no teacher may secure a certificate or have one renewed unless he or she can exhibit proficiency in the elemental facts concerning physical education.

Miss Mary I. Bell, who has been instructor in hygiene and librarian at the State Normal School, in Harrisonburg, Va., will be attached to the State Health Department but will work under regulations jointly approved by the State Board of Education and the Health Board.

"State Surgeon".

Dr. Robert C. Bryan, of this city, who saw active service in the World War, has been appointed by Governor Davis as head of the medical department of the National Guard of Virginia, with the rank of major and with the official title of "State Surgeon", in military circles.

Dr. U. G. Jones,

Of Marion, Va., is taking a post-graduate course on diseases of the eye, ear, nose and

throat at the Manhattan Eye, Ear, Nose and Throat Hospital, New York City.

Automobile Fatalities.

Reports from the Bureau of Census show for 1919 a total of 3,808 deaths from automobile accidents in the United States, in cities of 100,000 and over, or a rate of 14.1 per 100,000. It is worthy of note that the lowest death rate from automobile accidents for 1919 was in Richmond, where the rate was only 5.9 per 100,000. To decrease the rate, the Bureau suggests a constant improvement in traffic regulations to keep pace with the ever increasing number of automobiles.

Tucson Hospital Being Enlarged.

The U. S. Public Health Service is enlarging its hospital at Tucson, Ariz., so as to provide for 200 additional patients and for the necessary increase in hospital personnel. This enlargement is necessary to accommodate the large increase in the number of patients in this vicinity.

Dr. Robert T. Glassell,

Formerly of Bowling Green, Va., has located at Jewell Ridge, Va., where he is surgeon for the mines.

Lt. Col. T. C. Quick, M. C.,

Formerly of Falls Church, Va., is now in charge of the U. S. P. H. S. Hospital at Buffalo, N. Y.

Dr. B. L. Carleton,

Formerly of Laneview, Va., has located in Newport News, Va., with offices at 113 Thirty-First Street.

McGill University Interested in Anesthesia.

We note that McGill University, Montreal, is materially strengthening its courses in the subject of anesthesia by increasing both the number of lectures and recitations in this branch of medicine. Dr. Wesley Bourne, of Montreal, who is especially interested in this work, has already begun a survey of the hospitals and colleges of Canada with a view of finding just what work is being given in these institutions.

Dr. Thomas F. Gill.

Who has for some years practised at Marshall, Va., has located at 721 Edgewood Avenue, Richmond, in which city he will continue to practice his profession.

Christmas Seals.

Have you bought Xmas seals and in this way contributed toward the fight against tuberculosis in Virginia? If not, they may yet be had as the sale lasts through December 31. The proceeds of the sales will, in large proportion, be used locally to fight tuberculosis. It may be interesting to note that the double barred cross which the seal bears is the official emblem of the National Tuberculosis Association. It was first adopted as the International emblem of the fight against tuberculosis at a conference in Paris in 1902.

Savannah to have T-B Hospital.

The Chatham-Savannah (Ga.) Tuberculosis and Benevolent Association own a site of twenty acres. A recent gift of $20,000 from Grantham Taggart, a wealthy resident of that city, assures the early erection of a tuberculosis hospital in Savannah. Mr. Taggart will also erect two huts to cost about $2,000 each, which will be dedicated to his children.

Surgeon General Braisted to Retire.

Rear Admiral W. C. Braisted, surgeon general of the U. S. Navy since 1914, was placed on the retired list the last of November and was succeeded by Rear Admiral Edward R. Stitt. Dr. Stitt is 53 years of age and a graduate of the University of Pennsylvania, School of Medicine, in 1889. He is considered an authority on tropical diseases and at the time of his appointment was head of the naval medical school in Washington.

A Research Information Bureau.

The National Research Council has established a Research Information Service as a general clearing-house and informational bureau for scientific and industrial research. This "Service" on request supplies information concerning research problems, progress, laboratories, equipment, methods, publications, personnel, funds, etc. Ordinarily inquiries are answered without charge. When this is impossible because of unusual difficulty in securing information, the inquirer is notified and supplied with an estimate of cost.

Requests for information should be addressed, Research Information Service, National Research Council, 1701 Massachusetts Avenue, Washington, D. C.

St. Louis University Appeals for Funds.

St. Louis University, the oldest seat of

learning west of the Mississippi River, has for the first time in its more than a century of endeavor made a public appeal for funds, the larger portion of which are to be applied to the support of the Colleges of Medicine and Dentistry. It is asking its alumni and friends to raise the sum of $3,000,000 as a Centennial Endowment Fund, in commemoration of the 100th anniversary of the founding of the institution. The anniversary occurred in 1918, but because over 3000 of the undergraduates and alumni were in the service, the celebration was postponed until conditions were more nearly normal. This University holds the distinction of having established in the great Louisiana Purchase tract the first Colleges of Medicine, Dentistry, Law, and Commerce.

It is hoped by the Faculty that old graduates of the Medical and Dental Colleges of the University, who are now scattered all over the world, will appoint themselves a committeee of one to aid their Alma Mater to realize the Centennial Fund.

Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations on December 28, 1920, for associate in clinical pychiatry and psychotherapy, at an initial salary of $2,500 a year and maintenance:

On January 11, 1921, for chief, section of medical referees, at a salary of $4,000 to $6,000 a year;

On April 5, 1921, for roentgenologist at $200 to 250 a month, associate roentgenologist at $130 to $180 a month, assistant roentgenologist at $90 to $130 a month, junior roentgenologist at $70 to $90 a month. In addition to these salaries, quarters and subsistence will be allowed when possible or an increase in salary to cover these in part.

For detailed information, write the above Commission.

Reinstatement of War Risk Insurance.

We have been requested to call the attention of former service men to the fact that War Risk Insurance may still be reinstated and converted. For additional information or official application forms, write to Bureau of War Risk Insurance, R. G. Cholmeley-Jones, Director, Treasury Department, Washington, D. C.

Not Married.

Dr. Basil B. Jones, whose marriage was announced in our November issue, informs us that he has not that distinction. The party in question was a Mr. Basil Jones.

Dr. Jones further states that he is "still foot loose and fancy free" and has been residing safely in Boston, Mass., since October the first.

Dr. Edward McGavock,

Of Richmond, has been the recent guest of friends in Lynchburg, Va.

The Alvarenga Prize,

Amounting to about $250, will be awarded July 21, 1921, provided an essay shall have been submitted which the Committee of Award shall deem worthy. These essays may be upon any subject in medicine but shall not have been published. They should be typewritten and, if in any but the English language, shall be accompanied by an English translation. Each essay must be sent without signature but must be marked with a *non de plume* and be accompanied by a sealed envelope bearing on the outside this fictitious name and within must be given the name and address of the author. This essay shall be in the hands of the secretary of the College of Physicians and Surgeons, before May 1, 1921. Address John H. Girvin, M. D., Secretary, 19 South Twenty-second Street, Philadelphia, Pa.

Obituary Record

Dr. Moses Drury Hoge, Jr.,

One of the best known physicians of Richmond, died at his home November 24, after an illness extending over about a year. He was a son of the late Rev. Moses D. Hoge, D. D., for fifty-four years pastor of the Second Presbyterian Church of this city.

Dr. Hoge was born in Richmond fifty-nine years ago. After studying at Hampden-Sidney College and the University of Virginia, he went to Germany and studied medicine at the University of Berlin and later at the University of Heidelberg, graduating from the last named in 1886. He then returned to this country and practiced in this city until forced to retire on account of his health. He was prominent in the civic affairs of Richmond and was for many years a member of the City

Board of Health and of the City School Board. He was a member and ex-president of the Richmond Academy of Medicine and a member of the Medical Society of Virgnia. He was one of the pioneers in this State in microscopy and did much special work in this line. He was also professor of clinical diagnosis in the former University College of Medicine, in this city. During his professorship, he published two manuals on subjects in which he was especially interested. Dr. Hoge was one of the founders of Sheltering Arms Free Hospital in this city.

To know him intimately was but to love him, for Dr. Hoge possessed many attributes of mind and character of sterling worth. He was generous to a fault and charitable in his estimate of others. There are many friends who mourn his death.

He is survived by his wife who was Miss Alice Aylett, of King William County, Va., and four children.

Dr. Morton G. Douglas,

A prominent citizen and one of the leading physicians of Warrenton, Va., died suddenly November 14, while attending services at the Episcopal church in that place. Dr. Douglas was a native of Zanesville, Ohio, having been born in that city in 1869. After finishing his preliminary education at the schools in that place, he entered the University of Maryland, from which he received his diploma in medicine in 1895. He shortly thereafter located in Warrenton, where he had since made his home. He became a member of the Medical Society of Virginia in 1898. Dr. Douglas is survived by his wife, father and a sister.

Dr. Godfrey Lewis Miller,

Of Winchester, Va., and for more than sixty years an active practitioner, died December 2, at the age of 85 years. He was a graduate in medicine from the former Winchester (Va.) Medical College in 1859. During the War between the States, with the rank of captain, he was in general charge of the Confederate hospitals in Winchester and, after the war, was retained by the U. S. government to attend the wounded Federal soldiers there. He is survived by two sons.

Dr. Allen Carter Jones,

A prominent physician of Newport News, Va., died at his home in that city, November 9, from pneumonia. He was sixty-three years of age and a member of the Medical Society of Virginia. Dr. Jones studied medicine at the Medical College of Virginia, Richmond, from which he received his diploma in 1878.

Dr. Otto F. Richter,

Of White Sulphur Springs, W. Va., died at his home at that place November 10. He was fifty-seven years of age and received his medical education at the Medical College of Virginia, from which he graduated in 1884.

Dr. John Beale Gardner,

Formerly of Fredericks Hall, Va., died at his home in Washington, D. C., November 18. He was ninety years of age and a graduate of the Medical College of Virginia in 1856. He is survived by several children.

Dr. James C. Meredith

Died at his home, Manassas, Va., September 22, 1920. He was seventy-two years of age and a graduate of the College of Physicians and Surgeons, of Baltimore, Md., in 1885. Dr. Meredith was a member of the Medical Society of Virginia.

Dr. J. R. Spencer

Died at his home at Hollins, Va., early this month. He was 56 years of age and a graduate in medicine of the New York University Medical College in 1888. He had been a member of the Medical Society of Virginia for some years. Dr. Spencer formerly made his home in Farmville, Va., and the interment was made there. He is survived by his wife and one sister.

Dr. James Burrow,

Son of Judge and Mrs. Robert Burrow, of Bristol, Va., died December 5, in a hospital at Ancon, Panama, aged 26 years. Death was due to cirrhosis of the liver. He was a graduate of the medical department of the University of Pennsylvania, and was a surgeon in the government hospital at Ancon. The interment will be made at his former home.

Dr. Harrison L. Harris, Sr.,

One of the oldest and most prominent of the colored physicians of Richmond, died November 19, at the home of his daughter in Petersburg. He was sixty-five years of age and a graduate of the Howard University School of Medicine, Washington, D. C., in 1882.

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OCULAR ANGIOSCLEROSIS.*

By WILLIAM ZENTMAYER, M. D., Philadelphia.

In selecting "Ocular Angiosclerosis" as the subject for discussion I have had in mind the very serious nature of general, and more particularly, cerebral angiosclerosis, and the great importance of its early recognition. In the clinical study of changes in the walls of the blood-vessels the ophthalmologist has a very distinct advantage over other diagnostitians. With the ophthalmoscope not only does he observe the arteries and the veins without the masking of details by overlying tissues but, the walls of the retinal vessels being transparent, the slightest departure from this property renders them at once visible. Moreover, the resultant changes in the surrounding tissues are immediately discernible because of the delicacy and transparency of these structures.

In considering the relation of retinal angiosclerosis to the same disease of the general circulation, the well known tendency of the disease to be localized in certain organs or areas is to be recalled. It does not follow therefore that the condition of the retinal circulation is an index of that of the general system. The fact, however, that the retinal blood vessels are, as it were, a part of the cerebral circulation makes it fair to infer, in a very large percentage of cases, that, as are the retinal vessels so are the cerebral vessels. The changes in the retina in chronic interstitial nephritis are to be looked upon as due, not so much to the deranged function of the kidneys as to the sclerotic condition of the retinal vessels; a condition which pertains also to the renal vessels.

From the standpoint of the internist, the type of arteriosclerosis which is of senile origin and that due to high blood pressure are of the greatest interest, although equally important is that of syphilitic origin.

There are other ocular evidences of arteriosclerosis than those presented by the retinal circulation. The repeated occurrence of subconjunctival hemorrhages of spontaneous origin in people past middle life is very significant of vascular degeneration and often indicates the existence of a chronic nephritis. It is but right to say that these statements are accepted neither by all clinicians nor by all ophthalmologists, yet of their correctness I have little doubt. Such hemorrhages occur either at short intervals or months may intervene between their appearances. They are usually small and bright red in color. Knapp believes that they occur so readily from various causes that they are of little significance as an indication of nephritis. De Schweinitz says of such hemorrhages that they are indicative of ordinary angiosclerosis, but he points out that they are not confined to the eyes of old people but may be seen in those not much over forty, and in subjects, moreover, in apparently perfectly vigorous health and, when signs of arterial degeneration are not evident in the radials or temporals, are then suggestive of nephritis. Naturally, similar hemorrhages occur in the unsupported vessels of the lids. Their occurrence is an imperative call for repeated careful urinalyses. The anterior perforating vessels, those vessels of the globe brought into view by raising the upper lid, are frequently early affected by sclerosis. The involvement of these vessels may be recognized by their increased tortuosity, often corkscrew-like. The conjunctival vessels frequently show similar changes.

Fugacious edema of the lids and recurring chemosis of the conjunctiva are likewise symptomatic. According to Hirschberg, the latter

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occurs especially when the cerebral vessels are involved.

Even in the early stages of arteriosclerosis, asthenopia, or painful vision, may be complained of. This is probably due to the stiffening of the vessels of the ciliary muscle. Sustained near-work becomes almost impossible. Occasionally, before there are visible changes in the retinal vessels, vitreous hemorrhages occur, the blood coming from the vessels of the ciliary body. They give rise to annoying specks or spots before the eyes. In a like manner we may also have bleeding into the anterior chamber.

It is well recognized that one of the early effects of thickening of the vessel walls is the excitation of spasm of the vessel. When this occurs in the retinal vessels it gives rise to very definite subjective and objective symptoms. The subjective manifestation may be described as temporary obscuration of vision. As this phenomenon is due to ischemia, it follows that such disturbance of vision is not always to be interpreted as indicative of incipient sclerosis but may result whenever there is a relatively high intraocular tension and also as the result of the action of some toxic agent upon the walls of the vessels. When due to beginning sclerosis it is often the precursor of permanent closure of the central artery of the retina, and affords a means of differentiating between thrombotic and embolic closure.

The recital of the notes of a case of recurring spasm of the central artery of the retina which I had the privilege of studying through the kindness of Dr. D. F. Harbridge, of Phoenix, Arizona, may serve to visualize what few can ever have the good fortune to see. The attacks of blindness lasted about one minute. The obscuration of the field of vision began in the periphery and was compared by the patient to the shimmer from ice clad trees. Finally, the field became totally dark. The clearing up began in the periphery of the temporal field. Ophthalmoscopic examination showed a moderate contraction and distinct flattening of the arteries and veins at the beginning of the attack of blindness. When the blindness was complete the arteries became ribbon-like and lost their central light reflex. The veins became very narrow. After a brief period there was a gradual refilling of the arteries and veins, the latter becoming greatly distended. There were never any macular changes. The pupil dilated synchronously with the loss of vision and for a while after the attack exhibited hippus. Arterial pulsation probably occurs at about the same stage that spasm occurs, and is therefore one of the very earliest opthalmoscopic signs of vascular degeneration. The pulsation is characterized by a lateral displacement of the already tortuous artery in the plane of the retina and has been termed locomotion pulse in contradistinction to the arterial contraction pulse seen when intraocular tension is relatively high. I have looked for this sign but rarely have I seen it. As it must be a common result of the physical conditions present, the explanation of the infrequency of its observance is to be found in its very early appearance.

As to the sequence of the appearance of the later ophthalmoscopic signs we find no agreement among writers. Personally, I have been struck by the very early appearance of irregularities in the calibre of the veins. In the beginning this variability of the calibre gives a sacculated appearance to the vessel. It is, however, in the arteries that we find the most striking signs. Normally the reflex obtained from the vessels is the light reflected from the cylindrical column of blood and is sufficiently distinct to give to the central portion of the vessel a more brilliant appearance than the lateral portion of the blood column. When, however, hyalin and calcareous changes occur in the coats of the vessels, the light reflex comes from off the opaque walls and a greater amount of light is reflected back to the eye of the observer, and the entire width of the vessel becomes like burnished copper—the so-called copper wire appearance. The light reflex in hardened vessels may be followed out into their finest twigs.

The veins also give off a stronger reflex than normally. Accompanying this alteration in the light reflex, the vessels become more tortuous. In the larger branches this is shown in the development of sinous curves but the arterioles are apt to become corkscrew-like and whorls may form. These changes are early noted in the small vessels about the head of the nerve and in the macular twigs of the temporal branches of the central artery (de Schweinitz). Similar changes occuring in the vessels of the circle of Haller give to the head

of the nerve a more capillary appearance than usual. The structure of the arteries determines their becoming more affected than the veins, and this results in what may be called the crossing phenomena of arteriosclerosis. Frequent crossings of arteries and veins naturally occur. When a hardened artery crosses a vein, the vein is pressed down and flattened and, because of the walls of the artery having become more or less opaque, the underlying vessel cannot be seen and the appearance is as though a section of it had been removed. According to the degree of compression the effect on the distal portion of the vein varies; in most instances there is no notable effect, while in other instances there is considerable engorgement and distention of this portion of the vessel. Later, a localized edema of the retina may occur at this point. With the increasing sclerosis and the persistent pressure, hemorrhages are added to the picture. The effect produced by the crossing of a vein by an artery is not so striking. The vein becomes flattened out ribbon-like and the underlying artery, because of its opaqueness, becomes visible. Moore lays considerable stress on a sign which has escaped most observers but which in my experience is frequently present. When an artery crosses a vein at whatever angle, if there be marked arteriosclerosis, the vein is first diverted so as to lie along side the artery and on reaching the other side again lies along side of the artery for a short distance before continuing its former line. As before stated, there is always an advanced picture of retinal sclerosis in so-called albuminuric retinitis, and many of the accompanying changes are due to the vascular sclerosis. Naturally, therefore, in the later stages of retinal angiosclerosis, the ophthalmoscopic picture resembles closely that of nephritic retinitis. Besides the changes in the vessels, we have superadded those of venous stasis-edema of the retina and, because of the thickness of the fibre layer at the head of the nerve and doubtless also because of the pressure on the central vein by the artery within the trunk of the nerve, there is an edema of the head of the nerve, often of such a degree that the appearances are those of a papilloedema from increased intracranial pressure. Thrombi also form in the veins, causing hemorrhages. Sometimes added to these lesions we find soft white fluffy areas and even at times the macular star so long considered pathognomonic of albuminuric retinitis.

Important as are the ophthalmoscopic evidences of arteriosclerosis to the internist, a distinct advance would be made were it possible to recognize high tension in the retinal vessels. According to Bardsley this is possible. The phenomena which he claims to have found associated with hyperpiesia are: 1. The vessels have an appearance of uniform distention and fullness. 2. The light streak is broadened out; it may be greatly increased, apparently reaching almost the whole breadth of the vessel. 3. The light streak is very much brighter than normal, the brilliancy increasing with the increasing tension, until with very high tension it becomes like bright copper wire (not silver wire). 4. The tight arteries indent the veins; with very high tension they indent them deeply, leading to back pressure and its consequences. He seeks even to gauge the degree of blood pressure in mm. of mercury by certain variations in these phenomena. Adams has been impressed with the small size and pale color of the arteries and adds that you can safely say that you never see a nice fat artery with an ordinary or even exaggerated light reflex in high blood pressure. He gives as a second sign, before obvious pinching or indentations at the crossings, an absence of light reflex for a short distance up and down the vein. Before these observations can be accepted as clinical evidence, a more extended series of cases must be made by other recognized careful observers. All must agree that many persons with normal blood pressure have retinal vessels with appearances similar to those above described.

A remote, and far more serious, consequence of disease of the retinal vessels must be mentioned—obstruction to the central artery and also to the central vein, the first leading to complete sudden blindness which in the vast majority of cases is permanent, and the second to a rapid, almost complete, loss of vision, with secondary glaucoma as a sequel.

While we have but a single instance of anatomic study of a case of circinate retinitis from which to infer its cause, the examined case bore out the assumption that sclerosis of the capillary vessels of the retina is the underlying factor. It stands to reason that the choroidal vessels are often the seat of sclerosing processes which lead to degenerative types

of choroidal disease. That these conditions are not as frequently seen as the retinal type is due to the fact that the effect upon vision is not so baneful. Nevertheless, many of the forms of senile central choroiditis are undoubtedly of arteriosclerotic origin and the striking picture afforded by the conversion of the vascular network of the choroidal vessels into white fibrous ribbons has been seen by all ophthalmologists. According to Parsons, the arteries show "hyalin degeneration of their walls, perithelial proliferation, miliary aneurisms, hyalin thrombi, endarteritis obliterans and arteriosclerosis."

That the optic nerve may undergo local pressure atrophy involving certain fibres with resultant scotomata is the belief of Bull, who states that, while he has no certain data corroborated by autopsy which would convert a theory into a fact, he has for years been convinced that arteriosclerosis of the ophthalmic and internal carotid arteries may affect the optic nerve more frequently and seriously than has hitherto been suspected.

I have placed on record an interesting case of optic atrophy in which the prodromal symptoms were of a nature to warrant the assumption that arteriosclerosis of the basal vessels was the primary cause of the degeneration. The patient, a woman of 43 years, complained of dizziness with attacks of bilateral blindness. At first both eyes would recover fully from these attacks, but later the lower half of the right field would be slow to recover and finally it remained blind. Later, the left eye went through the same stages, the upper half, however, being slow to recover. There was atrophy of the upper half of the optic nerve with retinal arteriosclerosis in the right eye. In the left eye the lower half of the optic nerve was very grey. The symptoms can best be explained by assuming pressure by the hardened ophthalmic artery or internal carotid from beneath upon the nerve thus pressing it against the unyielding edge of the internal end of the fibrous canal, producing a transverse pressure atropy beginning above, but finally involving the entire diameter of the nerve.

From a consideration of his own cases and those in literature of the pressure effects on the optic nerve of sclerosed vessels at the base of the brain, Liebricht found that the most frequent seats of injury are—first, within the fibrous portion of the optic canal by the embedding of the ophthalmic artery into the nerve parallel to its long axis; second, at the sharp free margin of the reduplicated dural sheath where it spans the nerve near the optic foramen; the third lies midway between the canal and the chiasm, the place where the anterior cerebral artery above, and the carotid below, cross the nerve.

The role played by arteriosclerosis in the pathogenesis of glaucoma is hard to determine. The frequency with which sclerotic processes have been found in the ocular circulation in this disease is high but, as glaucoma is a disease with a predilection for the late decades of life, this is to be expected. It has not, however, been proven that it is strikingly higher than in the eyes of persons of this age who exhibit no evidence of ocular hypertonus and, as Romer says, on the whole we must agree with Bartels that the changes in the vessels represent only varying degrees of sclerosis which we meet with in age without glaucoma.

To substantiate the statement as to the importance of the relation of changes in the retinal vessels to those of the general and cerebral circulation, it is only necessary to quote the findings of those who have studied this association. Raehlman in 210 cases of arteriosclerosis found changes in the retinal vessels in nearly 50 per cent. Moore out of 44 cases of cerebral hemorrhage or thrombosis found that 30 per cent. showed no evidence of disease of the retina: 27 per cent. mild or moderately severe disease: 43 per cent. severe disease and arteriosclerotic retinitis (Moore). Gunn in 17 cases of sudden hemiplegia found retinal vascular disease in 10. Adams endeavored to trace to the end 156 cases of various retinal vascular lesions. Out of 49 cases in which the cause of death was definitely known, 22 died of cerebral hemorrhage and probably more, though the death certificates in the remainder were too vague to be certain. From the following up of 68 cases of retinal hemorrhage where they were in fifty the precursors of cerebral hemorrhage, Geis concludes that the retinal hemorrhages in arteriosclerosis, diabetes and chronic nephritis are usually the precursors of brain hemorrhage which, however, may not occur for years.

The purpose of this paper being largely clinical, it is not my intention to go deeply into the pathology of the disease. In the cen-

tral artery of the retina the changes are chiefly in the elastic membrane. This is thickened and split up. New formed elastic fibers are found. The endothelium shows but slight change. In the retinal vessels there is a proliferation of the intima but there are no elastic fibers. The connective tissue coat is thickened and shows hyalin change and this produces more or less concentric contraction of the lumen. When the intima is affected, the narrowing is eccentric, the lumen being displaced to one side (Adams). The pathologic findings are thus summed up by Coats: white lines along the vessels are probably due to thickening of the connective tissue coat, whilst a simple narrowing of the lumen is due to endothelial proliferation.

All authorities agree that the prognosis in reference to life is dependent not so much on the appearance of the vessels and the blood pressure as to the state of the kidneys and the heart, and this again on the age of the patient. Adams concludes from his studies that the older the patient the better the prognosis as regards life, irrespective of the presence of albumin in the urine, to a large extent; whilst the younger the patient the worse the prognosis and especially so if albumin is present in the urine. As to the vision, it is one of the surprises of the ophthalmologist how extensive may be the vascular changes without significant impairment of vision, provided, of course, there are no macular changes, and that the more serious complications of obstruction to the central artery and vein are not present.

The treatment of the ocular condition is largely that of the systemic treatment of findings. In the presence of extensive hemorrhages or where there is obstruction to the central vein, the instillation of a weak solution of pilocarpin into the eyes is a wise precaution. It has seemed to me that the internal administration of small doses of bichloride of mercury with Basham's mixture aids in clearing up the retinal edema.

1506 *Spruce Street.*

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TREATMENT OF CERTAIN TYPES OF GOITRE.*

By STUART McGUIRE, M. D., F. A. C. S., Richmond, Va.

Time was, and that within the memory of many of those present at this meeting, when a goitre was simply a goitre and all that could be done for it was to paint it with tincture of iodine. It is now recognized that there are many types of goitre, and that the different types require very different lines of treatment.

For the past fifteen years diseases of the thyroid gland have been the subject of much study and discussion. Many important facts have been established and many plausible theories have been advanced, but despite the enormous amount of work that has been done, there is much yet to be learned. Investigation must be continued until we standardize the treatment of diseases of the thyroid gland as we have those of other organs, and, until that time comes, the subject must not be regarded as stale or unprofitable.

The thyroid is in many respects the most wonderful organ in the body. Through its internal secretion it influences the physical development of the child and the mental activity of the adult. It regulates the growth of bone, the formation and distribution of fat, and the nutrition of the skin, teeth, hair and nails. It plays an important part in menstruation and parturition and has much to do with sexual desire and power. It influences the rate of the heart beat, the character of the peripheral circulation, and hence markedly affects the general blood pressure. It presides over the nitrogenous metabolism of the body and in other and perhaps unsuspected ways plays an important part in the human economy.

If thyroid secretion is excessive there are symptoms of metabolic riot. Heat production and gaseous interchange are rapid. The body tissues are stimulated to a course of wasting dissipation. There are seen tremors, sweating, tachycardia, muscular weakness, loss of weight and feverish mental activity.

If thyroid secretion is deficient, the meta-

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bolism of the body is depressed and heat production and gaseous interchange are at a low ebb. In the young, growth is lessened and the skeletal system is dwarfed. Connective tissue cells remain myxomatous. The skin is dry and thick and the hair coarse and shows deficient nourishment. The nervous system halts in development and mentality does not rise about the level of the infant.

Disease of the thyroid usually results in perversion of its function. If it causes diminished thyroid secretion the condition is known as hypothyroidism. If it causes increased secretion it is known as hyperthyroidism. Enlargement of the thyroid gland is termed goitre. If it be due to a general increase of tissue it is called a parenchymatous goitre. If due to the growth of a tumor it is called an adenomatous goitre. If due to the retention of secretion it is called a cystic or colloid goitre. Often two or all three of the above conditions may be found in the pathologic study of a single specimen. A goitre that causes no perversion of thyroid function and merely produces mechanical symptoms is called a simple goitre, while one that causes hyperthyroidism is called a toxic goitre. This clinical division is not a hard and fast one, however, because a simple goitre may take on activity and cause general symptoms, and a toxic goitre may undergo degenerative changes and cease to produce constitutional disturbances.

The treatment of simple goitre permits of little discussion. The parenchymatous type which causes the symmetrical enlargement of the thyroid, so frequently seen in girls about puberty, tends to spontaneous cure and is benefited by improving the patient's hygienic conditions and by the internal administration of thyroid extract and the external application of tincture of iodine. The adenomatous and colloid types are not influenced by treatment. They may later develop toxic symptoms or undergo malignant degeneration but as a rule they simply cause deformity and pressure symptoms. The patient is often the best judge as to when the disfigurement or discomfort they produce are sufficient to justify an operation.

Toxic goitres are much more serious and should be treated early and by efficient measures. In reviewing the literature on the subject one is struck by the various means and measures recommended and by the fact that honest and experienced men hold divergent views and that the same man often changes an apparently fixed opinion and attaches little importance to what he once considered an essential feature in the treatment of the disease.

Until recently it has been impossible to analyze the results reported by different clinicians in series of cases treated by different methods, and to determine what influence was exercised by individual skill and what by the procedures employed. It has been learned, however, that the thyroid regulates the general metabolism of the body and that an increase or decrease in its activity is accurately shown by corresponding changes in the patient's metabolic rate. Hence, by determining the degree of metabolism, we now have a scientific means by which we can estimate thyroid activity in an individual case, and can tabulate mathematically the effect of the various forms of treatment that are advocated for its abnormalities.

General metabolism is a process of chemical changes and results in the production of energy. Its degree or rate can be measured by the amount of heat produced. Basal metabolism is the minimum amount of cellular activity necessary to maintain life, and is estimated by the number of heat units produced in the animal organism while at rest. In making the test the subject is placed in the recumbent position to eliminate muscular work and all food is withheld for 12 or 15 hours to avoid the tax of active digestive processes.

Healthy individuals have been found to have approximately the same metabolic rate. There is a normal variation with age and sex and an abnormal variation in disease. The rate is low at birth, is high at puberty and decreases with advancing years. It is higher in the male than in the female. It is increased by physiological exercise and markedly retarded or accelerated in certain diseases. In cretinism it is often 40 per cent. below normal and in hyperthyroidism it is frequently 75 per cent. above normal.

Basal metabolism has to be calculated on the basis of the surface area of the body and in health it has been found to be approximately 39 calories per hour for each square metre. The determination of the surface area of the

human body was at first difficult but it has now been made quick and easy by the "Height-Weight Formula" of Du Boise, who has also published a chart of metabolism for both sexes at all ages.

The total amount of heat produced in a given time by an animal or individual was formerly determined by what is known as the direct method which consisted in placing the subject in a cabinet equipped with an elaborate apparatus which recorded the number of calories thrown off, but it has been shown that the same result can be arrived at by the indirect method which consists in the measurement of oxygen consumption, as this is a more or less accurate index of heat production. Benedict has invented a portable apparatus to estimate metabolic rate by the method last mentioned. It is simple, inexpensive and satisfactorily meets the needs of small clinics and hospitals. Thus, to the microscope, the stethoscope, the thermometer and the shygmomanometer we have added another diagnostic means of accurate precision based on the development of modern scientific knowledge.

There has not yet been sufficient experimentation or practical experience with basal metabolism to determine its exact clinical value. Like the thermometer it promises to be a most valuable agent but also like the thermometer its record must be considered together with the patient's clinical symptoms. A patient with typhoid fever who has a high temperature will not necessarily die or one with a low temperature necessarily live. Likewise, a patient with hyperthyroidism may have a high metabolic rate and not be as seriously sick as another with a low rate who has structural changes in the heart, liver or kidneys.

The metabolic rate of a patient is a definite index of the degree of hyperthyroidism present and therefore very valuable in making a diagnosis, especially in the early and late stages of the disease. The onset of hyperthyroidism is usually so gradual that it is difficult to recognize it is in its incipiency and here the metabolic rate will clearly differentiate it from hysteria, neurasthenia, tuberculosis and other conditions with which it may be confused. Again, in the late stages there develop symptoms due to degeneration of the heart, liver or kidneys and it is difficult to say how much the patient suffers from hyperthyroidism and how much from damage to the vital organs. Here also a determination of basal metabolism will be valuable not only for diagnosis but for prognosis as well.

While we do not know much about the etiology of exophthalmic goitre it is a fact that the condition frequently follows some acute disease and is maintained by a local focus of infection. Before beginning the systematic treatment of any case the tonsils and teeth should be examined and other possible sources of poison such as intestinal stasis should be determined and if any diseased condition is discovered it should be corrected.

Rest is the first and most essential factor in the medical treatment of the disease. It should be absolute and complete and must be mental as well as physical. It is useless to try to secure it at home. The patient should be placed in a hospital where he can be under proper control. Means and Aub studied the effect of rest on a group of cases. These patients had an average metabolic rate of +81 per cent. and after from one to three weeks the same group had an average rate of +67 per cent. In a few of the more toxic cases the curve rose in spite of rest. There was no case in the series whose metabolism was brought to within normal limits by rest alone. After time a level was usually reached and rest alone did not cause a further drop.

The administration of various drugs with a view to lessen metabolism has been advocated. Of these, hydrobromate of quinine with ergotine, glycocholate of soda and pancreatic extract have the greatest number of advocates. Means and Aub have tested the action of hydrobromate of quinine on a group of patients and found that it had no apparent effect on the metabolic rate of the cases. While it is only of historic interest it may be mentioned that the effect of Beebe's Serum on metabolism was also tested and found negative. The administration of digitalis is recommended by Willius, not for its effect on metabolism, but because of its influence on the heart. It is important to have a potent preparation and to prescribe it in sufficiently large doses to obtain the desired result. As the drug does not have a definite

action for 24 or 36 hours it is useless to give it hypodermically. If it causes nausea by mouth it may be administered by rectum.

The use of X-ray has long been advocated in these cases and more recently the application of radium has been recommended, the theory being that a sclerosis is produced which lessens glandular activity. The relative merits of X-ray and radium have not yet been determined, but it seems that the choice is largely a question of the experience of the operator and the convenience of the patient. Means and Aub tested the effect of X-ray on a group of cases. These patients had an average metabolic rate of +63 per cent. After one or two treatments at intervals of one month, there was a reduction to +52 per cent. After four or five treatments there was a reduction to +40 per cent., and after two or three years' treatment there was a reduction to +13 per cent. and the patients were able to lead normal lives. The advantages claimed for the X-ray method of treatment are that it avoids an operation and is attended by less danger to life. The disadvantages are the increased length of invalidism, the greater difficulty of operating if surgery is ultimately necessary, the possibility of shrinkage of tissues of neck, danger of myxedema and of X-ray burns and the liability of treating colloid and cystic goitres which are not benefited.

The injection of boiling water or a solution of quinine and urea into the body of the thyroid has been advised in cases of beginning hyperthyroidism not severe enough to justify operation and as a preparatory measure to partial thyroidectomy in patients too ill to warrant any form of immediate operative procedure. The theory on which this practice is based is that the destruction of glandular cells and the obstruction of blood vessels will cut down the output of thyroid secretion. The method has many enthusiastic advocates who report good results. It is not without immediate or remote disadvantages and dangers. Some patients are so sick that even this apparently simple procedure will cause an acute and perhaps a fatal hyperthyroidism, others will not be benefited and a subsequent surgical operation will be made difficult by the adhesions it has caused, and finally the irritation may eventually result in the development of cancer. Balfour reports 103 cases of malignant disease of the thyroid and it is a significant fact that 7 gave history of having been treated by the injection method.

It is generally conceded that at present the safest, surest and most satisfactory treatment of hyperthyroidism is by surgery. The practice of destroying a portion of a gland in order to lessen its physiological activity is certainly illogical, and only defensible on the ground that we are confronted with a condition and not a theory. Still it is a fact that while patients are benefited by rest and drugs and sometimes either make spontaneous recoveries or are cured by repeated and long continued X-ray or radium treatment, he is given his best chance by an operation, and one should be advised as soon as the diagnosis of the disease can be established by the clinical symptoms, the metabolic rate and the Goetsch's test, in order to economize time and avoid the possibility of serious complications.

The operations done for hyperthyroidism are ligations and partial thyroidectomies. The benefits from ligations are marked but the results are not permanent. Observation in a series of cases at the Mayo Clinic showed that ligations reduced the metabolic rate from an average of +57 per cent. before operation to an average of +39 per cent. three months after operation and there was also a corresponding improvement in clinical symptoms and an average gain of 21 pounds in weight. Experience has proved, however, that sooner or later there will almost invariably be a relapse and the patient's condition become worse than before. Ligations, therefore, are not relied on to effect a cure but are employed either as a test of a patient's reaction to trauma in cases where there is no doubt of the individual's ability to stand a thyroidectomy, or as a means to get a patient in condition for a more radical operation when it is obvious that at the time a thyroidectomy could not be done without great hazard.

The results of partial thyroidectomies are prompt and permanent. If the operation does not effect a satisfactory cure it is because either not enough of the gland has been removed, or that the operation has been delayed until the patient's symptoms are no longer due to hyperthyroidism alone but to organic changes in

the vital organs as well. Means and Aub found in a group of cases that the average metabolic rate was +46 per cent. before thyroidectomy and during the first two weeks after the operation there was a fall to +21 per cent. Then came a secondary rise which continued until the fourth month, but in the third year the average rate was +13 per cent. and the patients were leading normal lives. To get the best results it is necessary to remove all of one lobe, the isthmus and a large portion of the other lobe. Acute post-operative hyperthyroidism which is the greatest danger of the operation is not due as much to the amount of the gland taken out as it is to the amount of the gland left in. When it develops to a dangerous degree, the treatment advised by Crile of packing the patient in ice will be found most efficacious.

DISCUSSION.

DR. J. ALLISON HODGES, Richmond:—I would just like to say that I think the presentation of this subject is a very fair and impartial one, and I simply want to make this statement that probably, as many of you know, I have never been wedded to the knife when it was possible to avoid it, and yet in the treatment of this disease, after years of experience with all of the different varieties of thyroid glandular condition, I have come absolutely to the opinion that, if a reasonable period of complete rest does not favorably influence the symptoms, surgery offers the quickest, the best, the safest and most lasting result.

DR. JOSEPH BEAR, Richmond:—I would like to ask Dr. McGuire what has been his experience with the operative methods for goiter during pregnancy.

DR. EDWARD MCGUIRE, Richmond:—I do not think we recognize the importance of infection enough in the etiology of morbid thyroid conditions. We frequently see these cases associated with or followed by infected tonsils, which improve after removal of the tonsils with appropriate treatment.

I have lately seen comparatively a good many cases of exophthalmic goitre which I believe followed influenza. One case was in a strong active man of 55; the others were younger, but I was impressed with the number of males as compared with females.

As to the treatment I am somewhat conservative. In severe or progressing cases it is better not to be conservative but to advise operation as soon as the patient is in proper condition to be operated on. In those not acute, where the progress of the disease is slow, I believe conservative treatment should be tried. I mean by this, the use of radium or X-ray, followed by a prolonged absolute rest and constructive measures.

DR. STUART MCGUIRE, in replying to the question of Dr. Bear as to what his experience had been in operating on exophthalmic goitre during pregnancy, said, he had never had the complication to deal with in his own practice. If such a case were encountered, he would treat it by rest and X-ray, and if there was no decided improvement he would seriously consider producing an abortion before undertaking an operation.

He said he was afraid in his paper he had not given X-ray credit for the good it would accomplish if properly used; the results of X-ray treatment were slow and permanent cures were rarely effected. Still there was no question that the agent was one of decided value. He did not believe that X-ray had a permanent place in the treatment of hyperthyroidism, but he felt sure that some analogous method of treatment would eventually replace surgery in the cure of such cases.

OBSTETRICS DE LUXE.*

By M. PIERCE RUCKER, M. D., Richmond, Va.

To those of you who think that the title of my paper is grandiloquent, I wish to say in the beginning, that it deals with the greatest advances in the management of normal labor since the time of Oliver Wendell Holmes; advances, it seems to me, that are destined to take obstetrics out of the hands of midwives and duffers, and place it on the same plane as the other branches of medicine. The only credit that I claim in this connection is the combining and correlating the methods into one procedure.

Few of us realize, what wonderful advances the art of obstetrics has made in the last decade and a half in the management of the normal case. We have been bending all of our energies to the care of the abnormal patient, and have been sadly neglecting the one without complications. When I first began the study of midwifery, nineteen years ago, I was taught that the usual obstetric operations were to be used only in cases of emergency. My most vivid and lasting impression of this teaching, was the dire effect of taking longer than eight minutes to deliver a breech case, and the dread of having a face presentation that rotated posteriorly. If there were no likelihood of these two complications arising, we were well content to sit patiently by and be what Williams calls "a man-midwife." Only a puerperal convulsion could arouse us from our lethargy and then we practiced accouchement force with unwarranted ferocity. The only display of preventive medicine in obstetrics was the often neglected practice of putting silver nitrate in the baby's eyes, and an attempt to foretell an attack of eclampsia by an occasional urine examination. A complete antepartum examination was rarely done, and prenatal care, such as we do now, was un-

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known. The usual procedure was, for the husband to stop you on the street and tell you that he was looking for trouble around home soon. You made a mental note of the fact, and told him to send you a sample of his wife's urine, and there the matter stopped. When the call came you grabbed some antiseptic tablets and a bottle of ergot, and felt fully equipped to manage a normal case. If an emergency case arose, you sent back to the office for your kit containing your obstetrical instruments and supplies. Most of the younger women bought for themselves chloroform, but few received much benefit from it. Perineal tears were unlooked for and, unless very apparent, were un-repaired. The result of such practise was that child-bearing was a dreaded ordeal, and often the beginning of a life of invalidism.

Obstetrics today is a combination of preventive medicine and surgery. By a careful preliminary examination of our patient both physical and serological, we endeavor to discover all of her defects, so as to remedy those that can be corrected, and minimize the effect of what pathology can not be removed by treatment. This, of course, includes attention to teeth, tonsils, and appendix, and the improvement of secondary anemia. The weight, blood pressure and urine should be carefully followed, with reference to the appearance of the first indication of toxemia, and also of pyelitis. And last but not least, it should be impressed upon the patient the especial need at this time of good food, good air, and proper clothing and exercise.

A number of factors have caused a great awakening of interest in obstetrics. The first, and not the least by any means, was the appearance of Gauss' work on morphin-scopolamin analgesia. This produced a great deal of controversy, and directed the public's attention to the advantages of better obstetrics and of hospital treatment. Especially after the public became interested in the question, countless numbers of articles appeared in the literature, exhibiting a great deal of theory, some thought, and a little investigation, all of which did the cause of obstetrics some good.

C. H. Davis[1] brought out a book on painless childbirth, setting forth the disadvantages of morphin-scopolamin in the conduct of labor and the advantages of nitrous oxide-oxygen, or "Sunrise slumber", as the Chicago method was called by some of his reviewers. Edgar[2] came out with an article on making labor more comfortable. E. P. Davis[3] also had a piece in the medical papers on the subject, and many others, less well known, published various substitutes for twilight sleep. About the only conclusion one can reach, after reading through the mass of literature that accumulated upon this subject; was that those who used the method to any extent liked it, and those without experience, condemned it. At any rate, after the storm had passed, it was easier to get a patient to a hospital for confinement.

A much more recent obstetric controversy, that promises to redound to the glory of our art, is that concerning the Potter version. In 1916 Dr. Irving W. Potter reported before the American Association of Obstetricians and Gynecologists a series of 500 cases of podalic version, performed chiefly for the purpose of relieving the mother of suffering and saving the physician time. The method was denounced as dangerous and the thesis was withheld from publication in the transactions of the association. The next year he reported an additional 200 cases. This time the association published the paper, although it was no less bitter in denouncing his method. Shortly after taking part in adversely criticizing Dr. Potter's second paper, Dr. E. Gustav Zinke,[4] Secretary of the Association, had occasion to witness Dr. Potter's work, and the result of this visit was a letter in the American Journal of Obstetrics that recounts the above facts, describes the method as he saw Dr. Potter do it, and closes with the following paragraphs: "However, the crux of Dr. Potter's practice in resorting to frequent and early version in the absence of the generally accepted indications, lies in the fact that he not only does no harm, but actually benefits both mother and child. Curtailing labor pains and the conserving of strength of both lives concerned are strong arguments. Dr. Potter states, and I believe him, that since he resorts to early prophylactic version, he has observed fewer injuries to the mother's soft parts, such as lacerations of the cervix, vagina, and perineum, than in former years of prac-

1. Painless Childbirth, Entocia and Nitrous Oxide-Oxygen Analgesia, Forbes & Company, Chicago, 1916.

2. Edgar. J. A. M. A., Vol. 67, p. 739. Sept. 2, 1916.

3. Davis, E. P. Therap. Gaz. Vol. 41, p. 77. Feb., 1917.

4. Zinke, Amer. Jour. of Obstet., 1918, pp. 829-835.

tice. We all know with what frequency these injuries occur under the ordinary and well established rules of practice. More than that, if Dr. Potter demonstrates beyond a doubt that version may be resorted to in normal cases of labor, not only with impunity, but to the distinct advantage of all concerned, the procedure necessarily finds its justification in this alone. If Dr. Potter is able to perform internal version with a dexterity and gentleness free from danger to mother and child, and for their benefit at the same time, there is no good reason why others should not be able and willing to do the same. Think of a man personally attending and delivering safely eleven women within forty-six hours, in different hospitals and homes, and still finding time to eat, drink and sleep.

"My advice is: 'Go to see Dr. Irving Potter, witness his work and judge for yourself.' It is said: 'The proof of the pudding lies in the eating of it.' Women who have had the benefit of Dr. Potter's obstetric service want him again. There may be some exceptions, but they only prove the rule. In my opinion, Dr. Potter has taught us a lesson. Buffalo, N. Y., will be henceforth a Mecca for the young and ambitious obstetricians. Opposition to Dr. Potter's practice will be universal, severe, and probably vicious. We should all heed what will be said against it, but whatever the nature of adverse criticism, let it be just and, above all, devoid of bitterness."

At the recent meeting of the Association, at Atlantic City, Dr. Potter again had a paper on the same subject and, I am told, the discussion this time resembled more the testimony at a love feast.

A third factor, one that has not caused so much controversy, but that promises to do much towards making delivery a hospital procedure, was first suggested by Dr. Wright[5] of Toronto. It has been strongly advocated by Dr. Charles B. Reed[6] of Chicago. Dr. Reed maintains that the intra-uterine maturity of the fetus can be more accurately determined by careful measurements than by the history of the patient, especially in dispensary patients, and that the best method of delivery is that of inducing labor with rubber bags when intra-uterine maturity is attained. In this way, he avoids the dangers to mother and child of post-maturity, and can deliver the patient at a time that is convenient to both the mother and the hospital. To quote from Reed: "In brief, a scientific control of the labor from the very beginning replaces the watchful waiting of the midwife and puts the patient where she really belongs, in the domain of clean surgery."

Thus we see, that within the past fifteen years there have appeared three procedures dealing with normal cases that have been valuable enough to provoke considerable controversy. I have been keenly interested in all of these methods. Dr. Norton Mason[7] and I have presented before this Society the results of our study of fifty cases of "twilight sleep." Our conclusion, at that time, was that it was a valuable first stage procedure, but that in the second stage, other means of alleviating suffering were often necessary.

Now Potter's advance in the management of normal delivery practically does away with the second stage. The objection urged to his method, that it favors infection and injury to mother and child, he meets with a report of upwards of one thousand cases in which nothing of the sort occurred, which seems to me the most conclusive reply possible. The same objections were offered when Reed presented his several papers before the Chicago Gynecological Society, and they were met by the same argument, although with a smaller series of cases—200 in all. Reed made smears from the cervix in each of his cases and demonstrated all manner of pathogenic germs, including the streptococcus, the staphylococcus, and the gonococcus, and yet the highest temperature he encountered was 100.5, and this disappeared within 24 hours. He believes the absence of infection to be due to the better resistance his patients have by reason of the shortened labor and the lessened suffering incident to his method. In other words he avoids the devitalization of tissue that a long, painful labor causes.

Each of these scientists, Gauss, Potter and Reed, advocates the use of their method as a routine procedure, and valuable procedures they certainly are. However, there are some drawbacks to each.

Let us first consider the oldest, i. e., morphin-scopolamin analgesia. Even when limited to the first stage of labor it has certain

5. Wright, Amer. Jour. of Obstet., 1909, pp. 280-284.
6. Reed. Surgery, Gynecology and Obstetrics, Vol. 22, p. 294; Vol. 25, p. 201; Vol. 27, pp. 163 and 234.
7. Mason and Rucker. Va. Med. Semi-Monthly.

difficulties. In the first place, it is a long and tedious undertaking in the ordinary primipara. Many of our cases lasted from eighteen to twenty-four hours, and one that I well remember, lasted thirty-four hours. This, of course, is not long in comparison with ordinary primiparous labors, as it is not unusual to have an unaided delivery take as long as seventy-two hours. A number of the student cases in the out-patient department of the Medical College of Virginia last for three or more days. However, it is an exceedingly long time for the doctor to be in constant attendance upon one patient. Sometimes labor pains cease abruptly and may not begin again for several days. When this happens under ordinary circumstances, no particular attention is paid to it, but when it happens after sitting up all night administering scopolamin, you are apt to count it as time wasted. This happened once in the series we reported to this Society, and has happened to me several times since.

The Potter version has in its practical application certain minor objections to its universal use. Under ordinary circumstances, before or shortly after the rupture of the bag of waters, it is very easy to do, but if the amniotic fluid has drained off, or if a marked contraction ring has formed, very deep anesthesia is required to give the proper relaxation of the uterus. If you have an expert anesthetist, the version is not difficult, but it is not always the lot of the obstetrician to have an expert anesthetist.

The difficulties in the use of the Voorhees bag for the induction of labor at term, unaided by either of the other procedures I have just described, have in my experience been three in number. In the first place, when the bag escapes from the cervix, labor not infrequently stops. Reed overcomes this complication by massage of the uterus or by the use of pituitrin, both of which procedures I believe are open to objection. Second, the presenting part is sometimes displaced and a malposition or a prolapse cord may result. Reed does not find the former to take place (although in my somewhat limited experience it has happened twice), but he cautions you not to withdraw the bag in case the waters have inadvertently ruptured, for fear that suction produced in this way may draw down a loop of cord. Third, patients are made nervous by the operation, simple as it is, and, when labor pains begin, become frantic and demand that the bag be removed. I recall two such instances.

Upon pondering these difficulties as they occurred in my practice, it seemed to me that the objections to the practical use of these valuable methods could be obviated by combining them. If, by careful history taking combined with accurate measurements, you can determine the proper time for confinement, and can, by appointment and at a convenient hour, introduce a Voorhees bag with the patient under the influence of morphin and scopolamin, and can keep the patient under the influence of scopolamin until the womb is dilated, and can at that time deliver the child safely and promptly by Potter's version you have a procedure worthy of the title of this paper. In the first place, as Wright and Reed have pointed out, by setting a definite date you relieve your patient of a great deal of worry, both financial and otherwise, that the uncertainty of confinement entails. Many patients of the upper classes suffer a great deal in the last week or ten days of their pregnancy, and they welcome anything that gives them relief. The initial dose of morphin allays their nervousness and apprehension and the scopolamin favors the dilation of the cervix. On the other hand the presence of the bag insures a continuation of labor and shortens the first stage. It also preserves the amniotic fluid and makes version easier. You no longer have to contend with dry labors and contraction rings and are able to do the version and extraction with less anesthesia. The version, on the other hand, removes all danger from mal-position and prolapse of the cord. If you are prepared to deliver the child by version when you remove the bag, it matters not if the cord should prolapse or the child be in a faulty position.

In the fifty cases I report herewith, I have induced labor at an appointed time. In setting the time for operation, I have been guided largely by the history, unless the measurements of the fetus and the uterus show a gross error in the calculation. In one case with a justo-minor pelvis and in another in which there had been a complete laceration and a secondary repair less than a year before, I deliberately set up the time somewhat. In two cases appended to the fifty reports, because the technique was the same, operation was refused at the optimum time, but consent was given

lator. One of these had a large placental infarct and a macerated baby. The other had an oversized baby that was lost in delivery. The morphin and scopolamin was administered by the Freiberg technique, but the technique was not followed closely. The initial dose of morphin (gr. 1/6 or 1/8) and scopolamin (gr. 1/100 or 1/150) was given about 45 minutes before the bag was placed. As a rule, no more scopolamin was given until the pains began. For this reason, my patients had an island of memory at this time. This could be prevented, I believe, by a little closer attention to the interval between the placing of the bag and the beginning of the pains. While technically the twilight was imperfect, the patients have been very well satisfied. One of them, a primipara, volunteered the statement that she often had a movement from the bowels that caused her more pain. Several stated that the worst pain they experienced during labor was that caused by the rectal examinations. The bags that I have used were the Voorhees bags, No. 2, 4, 5 and 6. The No. 4 bag does not cause complete dilatation. It has seemed to me that the No. 6 bag was slower in action, possibly because it was so large that it partially, at least, was supported by the brim of the pelvis. In the last case in which I used this size, no pains were induced until I let out some of the water, and then pains began promptly. Another case showed the importance of pressure on the lower uterine segment, in producing pains. In this case, a No. 5 bag was accidentally gotten above the head without rupturing the amniotic sac. So long as the head intervened between the bag and the cervix, there were no pains, but as soon as I dislodged the head and drew the bag down into place, labor set in at once. The No. 5 bag seems to act almost as promptly as the No. 4 and causes complete dilatation. The bags were filled to moderate tension. I am now conducting some experiments to see if there is an optimum tension for the bags. The bags are either tied, clamped, or connected with a mercury manometer so as to record the strength, duration and frequency of the pains, as well as the residual tension on the bag. The amount of dilatation of the cervix is followed by rectal examination, which is much more certain on account of the presence of the bag than is usually the case. The edge of the cervix can be easily felt against the inflated bag, and its distance above the stem of the bag is a guide to the amount of dilatation. When the bag escapes from the cervix, preparations are made for immediate delivery by version. In three instances spontaneous delivery took place before we could get prepared, and in one instance mid-forceps was done instead of a version on account of a contracted outlet. Thirty-four of the present series are included in a report of 200 cases of Potter version that I recently made before the Richmond Academy of Medicine and Surgery.

The average duration of labor from the placing of the bag, or the earliest pain in case it antedated the placing of the bag, to the delivery of the afterbirth is shown in the following table:

Average Duration of Labor (In Hours).

	Primiparae (29 cases)	Multiparae (21 cases)
No. 4 bag—10.41	(14 cases)	7.53 (7 cases)
No. 5 bag—13.68	(4 ")	7.88 (4 ")
No. 6 bag—22.31	(9 ")	9.175 (10 ")
Not stated—12.5	(2)	

The average weight of the babies was 7.43 lbs., the extremes being 5 lbs. and 9 lbs. 6 ozs. The average length 50.96 cm., with 46 and 56 cm. as the two extremes. Thirty-three patients had no lacerations of the perineum, and 17 had first degree tears. In five cases the bag was placed after the amniotic sac had ruptured, and in three cases I inadvertently ruptured the bag of waters in introducing the Voorhees bag. One case, the only instance in which more than one bag was used, was started with a No. 2 bag and completed with a No. 6.

The mortality consisted of two babies. One was macerated when born, and the other died on the first day, of an enlarged thymus. There was no infection among the mothers. Two had malaria, with demonstrated plasmodii. One had a post-partum convulsion, and one had a breast abscess a month after delivery. One mother had a floating kidney. The mother who lost her child with enlarged thymus had polyhydramnion. One case in this series and one of the two cases appended had large placental infarcts, both of which were diagnosed before delivery.

Case Reports.

No. 406, white, age 26, previous children 0, abortions 0, Wassermann 0, justo-minor pelvis, the diagonal conjugate being 11.5 cm. At term,

from history,* February 28th; confined February 29th. On February 26th, the patient took ounces 1½ castor oil and grs. x of quinine. This had no effect other than to keep her awake all night. On February 28th, with the patient under the influence of morphin and scopolamin, I placed a No. 4 Voorhees bag at 8 A. M. At 11 P. M. she began having pains at 20 or 30-minute intervals until 1 P. M., when the pains died out entirely. The patient slept all night and when on the morrow she still had no pains, I began to doubt the efficiency of the bag. A vaginal examination was made and I was very much surprised to find the cervix entirely dilated. An easy Potter version was done. The cervix clamped down on the head, but was peeled back over the face easily. Duration of labor 32 hours and 25 minutes from the time the bag was placed. There was a slight tear of the skin and mucous membrane. The patient had a tendency to bleed for half an hour after the delivery of the afterbirth, but it was controlled with 1 c. c. of pituitrin and 3 drams of ergot. The child, a girl, weighed 6 13/16 pounds and measured 51 cm. in length. She breathed spontaneously. The puerperium was normal. The highest temperature was 100 on the fourth day.

No. 419, white, age 42, previous children 8, abortions 1. At term, from history, March 14th; confined Marth 12th. The patient was seen in consultation. Her physician advised terminating pregnancy on account of extreme hypertension (220 mm. of Hg.), acetonuria, albuminuria, glycosuria, and marked general edema. A Voorhees bag was used before I saw the patient, but had not stimulated pains, and was removed two hours before I was called. With the patient under morphin and scopolamin, a Number 4 bag was placed and a two pound weight attached to it. The bag came out in an hour, and when I saw the patient two hours later, I found the cervix completely dilated. The waters were ruptured and an easy version and extraction done. Duration of labor 4 hrs. and 28 min. There was a slight tear in the perineum, necessitating one suture of silk worm gut. The child, a boy, weighed 9 6/16 lbs. and measured 54 cm. in length. He breathed spontaneously. The puerperium was normal and afebrile. Both patients left the hospital on the fifth day.

* By Nagele Rule in this and all subsequent cases.

No. 421, white, age 25, previous children 0, abortions 0, Wassermann 0, hemoglobin on admission 51%, normal pelvis. At term, from history, March 27th; confined Marth 15th. Labor was induced on account of edema, marked albuminuria, and a rising blood pressure. A No. 4 bag was placed at 4 P. M. At 9:30 P. M. the pains stopped and the bag was found to be out of the cervix. A Potter version was done easily. Duration of labor 6 hrs. and 40 min. Perineum intact. The child, a girl, weighed 7 lbs. and measured 51 cm. She breathed spontaneously. The puerperium was normal. The highest temperature was 99.2 on the fourth day.

No. 422, white, age 23, previous children 1, abortions 0, Wassermann 0, pelvis normal. At term April 17th; confined March 16th. The case was primarily a shoulder presentation, and the position was uninfluenced by the bag. On inserting the bag, I accidentally ruptured the membranes. When the cervix was fully dilated, I did an easy version and extraction. There was a low implantation of the placenta. Duration of labor 6 hrs. and 25 min. There was slight tear. The child, a boy, weighed 7 lbs. and measured 51 cm. He breathed spontaneously. The puerperium was normal. The highest temperature was 99.8 on the first day.

No. 440, white, age 19, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term April 9th; confined March 23rd. A N. 4 bag was used. Duration of labor 8 hours and 35 min. Perineum intact. The child, a girl, weighed 8 lbs. and measured 49 cm. She breathed spontaneously. Puerperium was normal. The highest temperature was 100 on the third day.

No. 441, white, age 17, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term April 29th; confined March 23rd. A No. 4 bag was used and was weighted. Duration of labor 12 hrs. and 28 min. First degree tear. The child, a boy, weighed 6.25 lbs. and measured 48 cm. He breathed spontaneously. Puerperium was normal. The highest temperature was 101 (one reading) on the fourth day. The patient had a rising breast May 14th to 28th.

No. 451, white, age 37, previous children 2, abortions 0, Wassermann 0, funnel pelvis with a transverse measurement of 7.5 cm. At term May 11th; confined April 25th. A No. 6 bag

was used, and it was weighted. Duration of labor 17 hrs. and 56 min. The version was easy, but the cervix clamped down upon the head and the head had to be shelled out with the hand. Perineum was intact. The child, a boy, weighed 7.5 lbs. and measured 50.5 cm. He breathed spontaneously. Puerperium was normal. The highest temperature was 99 on the sixth day.

No. 456, white, age 35, previous children 4, abortions 5, Wassermann not taken. Pelvis normal. At term May 26th; confined May 2nd. Labor was induced on account of a rising blood pressure and pain in pit of the stomach. A No. 4 bag was used and weighted. Duration of labor 9 hrs. and 3 min. Perineum intact. The child, a girl, weighed 8 1/16 lbs. and measured 49 cm. She breathed spontaneously. The puerperium was normal and afebrile.

No. 457, white, age 26, previous children 1, abortions 0, Wassermann 0, pelvis normal. At term May 24th; confined May 2nd. For several days she had been having little aggravating pains accompanied by a slight bloody discharge. A No. 6 bag was used. Duration of labor 7 hrs. and 52 min. Perineum intact. The child, a boy, weighed 6¾ lbs. and measured 50 cm. He breathed spontaneously. Puerperium was normal. The highest temperature was 99 on the day of the delivery.

No. 459, white, age 28, previous children 1, abortions 0, Wassermann not taken. Pelvis normal. At term May 3rd; confined May 3rd. A No. 6 bag was used. Duration of labor 7 hrs. and 47 min. First degree tear. The child, a girl, weighed 8.5 lbs. and measured 52 cm. She breathed spontaneously. Puerperium was normal except for a painful floating kidney and a temperature of 101.8 on the fourteenth day.

No. 461, white, age 35, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term April 21st; confined May 6th. The cervix was uneffaced and was long and narrow. A No. 2 bag was used first and, when this came out, a No. 6 bag was placed. The presentation was primarily a breech, and was unchanged by the bags. Duration of labor 46 hrs. and 15 min. First degree tear. The child, a girl, weighed 6 lbs. and measured 50 cm. She breathed spontaneously. Puerperium was normal until the tenth day, when her temperature went up to 101. Malarial organisms were found in the blood.

No. 469, white, age 22, previous children 0, abortions 1, Wassermann 0, pelvis normal. At term June 16th; confined May 14th. Induction of labor was advised on account of the probability of there being a large placental infarct. The cervix was long and narrow, but not rigid. A No. 4 bag was used. Duration of labor 6 hrs. Perineum intact. The child, a boy, weighed 5 lbs. and measured 47 cm. He breathed spontaneously after he was drained of fluid in his throat. Ossification was incomplete. The placenta showed a large red infarct filled with clotted blood. Puerperium normal. Highest temperature was 99.8 on the fourth day. This case was primarily a R. O. A. and secondarily a breech.

No. 481, white, age 17, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term May 17th; confined May 25th. A No. 4 bag was used. Duration of labor 13 hrs. and 10 min. Perineum intact. The child, a boy, weighed 7.5 lbs. and measured 52 cm. He breathed spontaneously. Puerperium normal. The highest temperature was 98.3 on the third day.

No. 483, white, age 26, previous children 1, abortions 1. Wassermann 0, pelvis normal. At term April 4th; confined May 26th. The waters broke before the patient came to the hospital. She was given 3 ounces of castor oil upon getting to the hospital, but did not go into labor. Patient then consented to a bag. A No. 6 bag was placed. Duration of labor 3 hrs. and 27 min. The perineum was intact. The child, a boy, weighed 9.25 lbs. and measured 56 cm. He breathed spontaneously. Puerperium was normal. Highest temperature was 99.2 on the fourth day.

No. 485, white, age 25, previous children 0, abortions 2, Wassermann 0, pelvis normal. At term May 26th; confined May 28th. A No. 4 bag was used. Duration of labor 5 hrs. and 12 min. Perineum intact. The child, a girl, weighed 5 lbs. and measured 47 cm. She breathed spontaneously. Puerperium was normal. The highest tempeature was 99.2 on the fifth day.

No. 492, white, age 18, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term July 2nd; confined June 8th. A No. 6 bag was used, and it was weighted. Duration of labor was 36 hrs. and 2 min. The perineum was intact. The child, a girl, weighed 5.5 lbs. and measured 48 cm. She breathed spon-

taneously. Patient had one postpartum convulsion. Otherwise, the puerperium was normal. The highest temperature was 98.

No. 496, white, age 21, previous children 0, abortions, 0, Wassermann 0, pelvis normal. At term June 10th; confined June 14th. A No. 6 bag was used. Duration of labor 12 hrs. and 15 min. Perineum intact. The child, a boy, weighed 7.5 lbs. and measured 55 cm. He breathed spontaneously. Puerperium normal. The highest temperature was 100.4 on the third day.

No. 497, white, age 23, previous children 0, abortions 1, Wassermann 0, pelvis normal. At term June 30th; confined June 16th. The waters broke before she came to the hospital. A No. 6 bag was used. Duration of labor 6 hrs. and 15 min. Perineum intact. The child, a girl, weighed 8 1/16 lbs. and measured 52 cm. She breathed on being spanked. Puerperium was normal. The highest temperature was 99 on the first day.

No. 501, white, age 32, previous children 2, abortions 0, Wassermann 0, pelvis normal. At term June 17th; confined June 20th. A No. 6 bag was used. Duration of labor 8 hrs. and 20 min. Perineum was intact. The child, a girl, weighed 7.5 lbs. and measured 52 cm. She breathed spontaneously. Puerperium was normal. Highest temperature was 98.6 on the fourth day.

No. 504, age 35, previous children 3, abortions 2, Wassermann not taken. Pelvis is normal. At term June 29th; confined June 22nd. She had a blood pressure of 190. A No. 6 bag was used. Duration of labor 2 hrs. and 23 min. Perineum intact. The child, a boy, weighed 9 3/16 lbs.; and measured 53 cm. He breathed spontaneously. Puerperium normal. The highest temperature was 99.6 on the fourteenth day.

No. 506, white, age 23, previous children 2, abortions 1, Wassermann 0, pelvis normal. At term July 12th; confined June 24th. A No. 6 bag was used. Duration of labor 8 hrs. and 58 min. Perineum intact. The child, a girl, weighed 7 3/16 lbs. and measured 54 cm. She breathed spontaneously. Puerperium normal. Highest temperature 99 on the fifth day.

No. 510, white, age 35, previous children 2, abortions 2, Wassermann 0, pelvis normal. At term July 21st; confined June 29th. A No. 6 bag was used. Duration of labor 6 hrs. and 35 min. Perineum intact. The child, a boy, weighed 7.5 lbs. and measured 51 cm. He breathed spontaneously. Puerperium was normal except for malaria that developed postpartum. The plasmodium was demonstrated in the blood. Highest temperature was 102 on the tenth day.

No. 511, white, age 23, previous children 1, abortions 0, Wassermann 0, pelvis normal. At term June 30th; confined July 1st. A No. 6 bag was used and it was weighted. Duration of labor 19 hrs. and 3 min. Perineum intact. The child, male, was macerated, weighed 8 lbs. and measured 54 cm. Puerperium was normal. The highest temperature was 98.8 on the second day.

No. 512, white, age 38, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term July 8th; confined July 4th. Patient was having a few pains when she came to the hospital. A No. 6 bag was used. Duration of labor 20 hrs. and 18 min. Perineum intact. The child, a boy, weighed 7 lbs. and measured 51 cm. He breathed spontaneously. Puerperium normal. The highest temperature was 100.4 on the day of delivery.

No. 513, white, age 38, previous children 0, Wassermann not taken, pelvis not measured. The patient had been in labor all day when I was called in consultation. The waters ruptured as I put in the bag. The bag stayed in a very short time and dilatation was completed manually. Duration of labor 17 hours and 55 minutes. First degree tear. The child, a girl, weighed 8 lbs. and measured 52.5 cm. She breathed spontaneously. Puerperium normal. Highest temperature 100 on the day of delivery.

No. 514, white, age 23, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term July 28th; confined July 8th. A No. 4 bag was used. The cervix clamped the head and had to be peeled over the face. Duration of labor 11 hrs. and 14 min. Perineum intact. The child, a girl, weighed 6.5 lbs. and measured 51 cm. She breathed spontaneously. Puerperium normal, except for sore nipples. Highest temperature 103 for a few hours on the fourth day.

No. 530, white, age 29, previous children 1, abortions 0, Wassermann 0, pelvis normal. At term September 7th; confined August 3rd. Poly-hydramnion. Castor oil 3 ounces failed to bring on labor. A No. 4 bag was used. Duration of labor 15 hrs. and 35 min. Perineum

intact. The child, a girl, weighed 7 lbs. and measured 52 cm. She was blue and required spanking to make her breathe. The child lived several hours and, at autopsy, showed markedly enlarged thymus, extending to the apex of the heart. Puerperium normal. Highest temperature 100 on third day.

No. 533, white, age 20, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term August 15th; confined August 7th. A No. 6 bag was used after castor oil 3 ounces failed to bring on labor. Duration of labor 18 hrs. and 25 min. Perineum intact. The child, a girl, weighed 6 lbs. 5 oz. and measured 49 cm. She breathed spontaneously. Puerperium normal. Highest temperature 98.8 on the third day.

No. 543, white, age 19, previous children 0, abortions 0, Wassermann not taken, pelvis normal. At term August 1st; confined August 12th. A No. 4 bag was used. Duration of labor 11 hrs and 25 min. Perineum intact. The child, a boy weighed 8 lbs. and 1 oz. and measured 52 cm. He breathed spontaneously. Puerperium normal The highest temperature was 98.6.

No. 544, white, age 23, previous children 0, abortions 0, Wassermann not taken, pelvis normal. At term August 20th; confined August 12th. Duration 7 hrs. and 5 min. First degree tear. The child, a boy, weighed 7 lbs. and measured 50 cm. He breathed spontaneously. Puerperium normal. No fever.

No. 548, white, age 16, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term August 22nd; confined August 16th. A No. 6 bag was used. Waters broke when it was introduced. Duration of labor 12 hrs. and 15 min. First degree tear. The child, a boy, weighed 8 lbs. and measured 52 cm. He breathed spontaneously. Puerperium normal. Highest temperature 102.4 on the seventh day, along with sore nipples.

No. 549, white, age 32, previous children 5, abortions 4, Wassermann not taken, pelvis normal. At term July 20th; confined August 17th. A No. 4 bag was used. Spontaneous delivery. Duration of labor 8.5 hours. Perineum intact. The child, a boy, weighed 7.5 lbs. and measured 49 cm. He breathed spontaneously. Puerperium normal. Highest temperature 100.5 on the fifth day.

No. 552, white, age 23, previous children 2, abortions 0, Wassermann 0, pelvis normal. At term August 8th; confined August 19th. No. 4 bag was used. Duration of labor 4 hrs. and 18 min. Perineum intact. The child, a girl, weighed 7 lbs. and 14 oz. and measured 51 cm. She breathed spontaneously. Puerperium normal. Highest temperature normal.

No. 553, white, age 30, previous children 0, abortions 0, Wassermann not taken, pelvis normal. Exophthalmic goiter. At term August 7th; confined August 21st. No. 4 bag. Duration of labor 8 hr. and 5 min. First degree tear. The child, a girl, weighed 7¾ lbs. and measured 53 cm. She breathed spontaneously. Puerperium normal. Highest temperature 100 on day of delivery.

No. 562, white, age 26, previous children 2, abortions 0, Wassermann 0, pelvis normal. At term September 25th; confined September 3rd. No. 6 bag. Duration 9 hrs. and 10 min. Perineum intact. The child, a girl, weighed 6.5 lbs. and measured 50 cm. She breathed spontaneously. Puerperium normal. Highest temperature was 99 on the 8th day.

No. 566, white, age 26, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term August 27th; confined September 7th. No. 4 bag. Forceps were applied to after-coming head. Duration of labor 7 hrs. and 50 min. Perineum intact. The child, a girl, weighed 7⅞ lbs. and measured 52 cm. She breathed spontaneously. Puerperium normal Highest temperatnre was 101.3 for one reading on the second day.

No. 573, white, age 26, previous children 1, abortions 0, Wassermann 0, pelvis funnel. At term October 27th; confined September 15th. Her water broke before I saw her. A No. 4 bag was used. Duration of labor 4 hrs. and 25 min. Perineum intact. The child, a boy, weighed 5¼ lbs. and measured 46 cm. He breathed spontaneously. Puerperium normal. Highest temperature 99.6.

No. 574, white, age 23, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term September 19th; confined September 16th. No. 4 bag. Duration of labor 7¼ hrs. First degree tear. The child, a girl, weighed 8¼ lbs. and measured 53 cm. She breathed spontaneously. Puerperium normal. Highest temperature 98.3.

No. 577, white, age 21, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term September 28th; confined September 20th. No. 4 bag. Duration of

labor 9.5 hrs. Perineum intact. The child, a boy, weighed 7 and 5/16 lbs. and measured 52 cm. He breathed spontaneously. Puerperium normal. Highest temperature 100 on the third day.

No. 588, white, age 27, previous children 0, abortions 0, Wassermann 2 plus, pelvis normal. At term October 12th; confined October 4th. Waters broke before coming to hospital. No. 6 bag. Duration of labor 27 hrs. Very slight tear. The child, a girl, weighed 6 5/16 lbs. and measured 50 cm. She breathed spontaneously. Puerperium normal. Highest temperature 99.8 on day of delivery.

No. 593, white, age 26, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term (?); confined October 10th. No. 5 bag. Duration of labor 12 hrs. and 19 min. Perineum intact. The child, a girl, weighed 6¾ lbs. and measured 51 cm. She breathed spontaneously. Puerperium normal. Highest temperature 99.4 on the fifth day.

No. 594, white, age 28, previous children 2, abortions 0, Wassermann 0, pelvis normal. At term October 25th; confined October 11th. No. 5 bag. Duration of labor 12¾ hrs. Very slight tear in perineum. The child, a girl, weighed 8 lbs. and measured 50 cm. She breathed spontaneously. Puerperium normal. Highest temperature 99 on day of delivery.

No. 598. white, age 33, previous children 0, abortions 0, Wassermann 0, pelvis funnel, with a transverse diameter of 8.5 cm. At term November 2nd; confined October 16th. Waters broke before coming to the hospital. No. 5 bag. Duration of labor 5 hrs. and 20 min. The child was delivered by forceps as soon as the bag was removed on account of the contracted outlet. First degree tear. The child, a girl, weighed 6 6/16 lbs. and measured 48 cm. She breathed spontaneously. Puerperium normal. Highest temperature 100.5 on the day of delivery.

No. 599, white, age 21, previous children 0, abortions 0, Wassermann not taken, pelvis normal. At term October 14th; confined October 16th. No. 4 bag. Duration of labor 6 hrs. and 13 min. Perineum intact. The child, a girl, weighed 7 9/16 lbs. and measured 51 cm. She breathed spontaneously. Puerperium normal. Highest temperature 100.5 on day of delivery.

No. 600, white, age 23, previous children 0, abortions 2, Wassermann 0, pelvis normal. At term October 8th; confined October 18th. No. 5 bag. Duration of labor 13 hrs. and 45 min. Perineum intact. The child, a boy, weighed 7¾ lbs. and measured 52 cm. He breathed spontaneously. Puerperium normal. The highest temperature was 99 on the third day.

No. 603, white, age 30, previous children 1, abortions 0, Wassermann 0. At term October 15th; confined October 19th. No. 5 bag. Duration of labor 5 hrs. and 10 min. There was a very slight tear. The child, a girl, weighed 6¼ lbs. and measured 49 cm. She breathed spontaneously. Puerperium normal. Highest temperature 99 on the 2nd day.

No. 606, white, age 33, previous children 1, abortions 0, Wassermann 0. At term October 27th; confined October 22nd on account of increasing headache and nausea. No. 5 bag. Duration of labor 9 hrs. and 12 min. There was a very slight tear. The child, a girl, weighed 7 6/16 lbs. and measured 52 cm. She breathed spontaneously. Puerperium normal. Highest temperature on the 8th day, accompanied by cracked and painful nipples.

No. 607, white, age 21, previous children 0, abortions 0, Wassermann 0. At term October 22nd; confined October 25th. No. 6 bag. Duration of labor 21 hrs. and 40 min. First degree tear. Spontaneous delivery. The child, a boy, weighed 6 lbs. and measured 50 cm. He breathed spontaneously.

No. 608, white, age 15, previous children 0, abortions 0, Wassermann 0. At term October 10th, confined October 27th. Patient consented to a bag after her waters broke, when the rigid cervix was only one-half dilated. No. 5 bag. Duration of labor 23 hrs. and 38 min. Perineum intact. Th child, a girl, weighed 6 lbs. and 6 ozs. and measured 50 cm. She breathed spontaneously.

No. 609, white, age 38, previous children 2, abortions 0, Wassermann not taken. At term October 12th; confined October 27th. No. 5 bag. Duration of labor 4 hrs. and 13 min. Perineum intact. The child, a girl, weighed 8¾ lbs. and measured 56 cm. She breathed spontaneously.

Cases That Refused Operation at the Optimum Time.

No. 444, white, age 29, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term April 14th; confined April 6th. On March 12th the blood pressure began to rise,

and was uninfluenced by a bread and water diet and purgation. Patient had no headache, edema, nor albuminuria. Induction of labor was advised, but it was refused until April 6th. By this time, fetal movements had ceased and no fetal heart sounds could be heard. No. 4 bag. Duration of labor 11 hrs. 55 min. Perineum intact. The child was macerated. Its weight and length were not recorded, but the other measurements were those of a full term child. They are: B. T. 7; B. P. 8; S. O. B. 8; O. F. 10; O. M. 11.5; Bis-A. 13; trunk is 34 cm. Puerperium normal. Highest temperature 99.8 on the first day. Autopsy on the baby was entirely negative.

No. 480, white, age 17, previous children 0, abortions 0, Wassermann 0, pelvis normal. At term May 22nd; confined May 24th. On account of the measurements of the fetus and uterus, I wanted to induce labor May 3rd. The head was floating above the brim and it could not be fitted into the superior strait. No. 4 bag. Duration of labor 11 hrs. and 15 min. In extracting the head, I had great difficulty in getting it past the superior strait, it passing this in the transverse diameter. I had even greater difficulty in getting it by the inferior strait. There was second degree tear. The child was still born. He weighed 10 lbs. and measured 58 cm. Puerperium was normal. Highest temperature was 99 on the 7th day.

Conclusions:

1. There is an optimum time for delivery that can be accurately determined by careful history taking, accurate measurements, and close observation of the patient in the last part of her pregnancy.

2. When the optimum date is established, it is feasible, in proper surroundings, to induce labor by bags, with the patient under morphin-scopolamin, and to terminate labor at the end of the first stage by Potter's version.

3. The No. 6 Voorhees bag is too large. It rests upon the bony pelvis and is slow in starting labor pains. Preferable sizes are No. 4 and No. 5, according to the size of the pelvis and the amount of dilatation of the cervix.

4. By the adoption of the methods described above, you can materially reduce the fetal mortality, lessen the likelihood of brain injuries and, at the same time, make child-bearing more comfortable for both the mother and the obstetrician.

400 *North Lombardy Street.*

ECLAMPSIA AND ITS CONSERVATIVE TREATMENT.*

By JOSEPH BEAR, M. D., Richmond, Va.

Associate in Obstetrics, Medical College of Virginia; Member of Attending Staff, Memorial Hospital; Member of Staff, Virginia Hospital; Lecturer on Obstetrics, Virginia Hospital Nurses' Training School.

One of the most dangerous complications that may befall the pregnant woman is convulsions attended by coma. This is commonly called eclampsia. Hippocrates mentions the convulsions in pregnant women and knew that they most often occurred in women who had headache and a tendency to sleep (coma). The word eclampsia means to flash, or shine out, and was first introduced in 1760. It is an acute toxemia and may occur during pregnancy, labor or in the puerperium. It is usually accompanied by clonic and tonic convulsions, during which there is a loss of consciousness followed by more or less prolonged coma. As a rule, it is not observed until the second half of pregnancy, becoming more frequent nearer term.

Statistics show that eclampsia occurs in about one per cent of the women entering lying-in hospitals (Williams); once in about 300 cases of pregnancy (Hirst). It is most frequently seen in primaparae and more in women illegitimately pregnant. It most often occurs during labor, is next in frequency during pregnancy, and least frequent during the puerperium. According to Williams, most of his cases occurred ante-partum.

Pathology.—After Rayer and Lever had demonstrated the presence of albumen in the urine of women suffering from eclampsia, it was generally believed that the pathological lesion was a nephritis, and for a long period of time the condition was considered to be synonymous with uremia. This view, however, was soon given up when it was found that only a small percentage of the women suffering from chronic nephritis had eclampsia. Usually, at autopsy, renal changes will, of course, be found, and it may be very marked in some and only slight in other cases. The lesions are those of an acute nephritis with marked degeneration and necrosis of the renal epithelium. While renal changes do occur in this condition, the evidence which we hold is not sufficient to justify considering them as the

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characteristic lesion of eclampsia. In 1886, it was pointed out that a certain number of eclamptics showed hemorrhagic hepatitis. Two years later Pilliet called our attention to certain hemorrhagic lesions in the eclamptic liver. This work was taken up by Schmorl in 1893, who stated that in his seventeen autopsies he found in every case lesions of the liver, which he held to be more characteristic than those found in the kidneys. These consist of irregularly shaped, reddish or whitish areas scattered through the entire liver in the region of the smaller portal vessels. With the microscope they show areas of necrosis and fatty degeneration involving the periphery of the lobules and portal spaces, in which blood cells may or may not be present. In the smaller portal vessels thrombotic processes will be noticed. The heart and brain may be affected in this condition. In the brain, the chief lesions are edema, hyperemia, anemia, thrombosis and apoplexy. Anemia with some edematous infiltration is quite common.

Of its etiology we know surprisingly little in any exact sense. So many advanced theories have been set forth, that it has been designated as "the disease of theories." In spite of the great amount of work that has been put upon this extremely important subject, the real cause of eclampsia is unknown. Generally speaking, the investigations have been undertaken in the hope of demonstrating that eclampsia is due to one or more of the following factors: fetal metabolism: the entrance of fetal or placental elements into the maternal circulation; poisoning by substances formed or retained in the placenta; disturbances of the maternal metabolism. The theory that has been most generally accepted is that of a toxemia—some poison circulating in the blood which produces necrosis of the liver and, directly or indirectly, degenerative changes of the kidneys and also convulsions, by direct toxic action on the anterior cerebral cortex. The exact place where these toxins originate is a question which has aroused considerable study and discussion. The close relation which exists between the thyroid and metabolism led Nicholson to assume that eclampsia might be due to thyroid insufficiency, and to recommend the use of its extract in the treatment of this condition. Lange found that hypertrophy of the thyroid was one of the usual features of normal pregnancy, and that its absence predisposed to the occurrence of a toxemia.

An interesting point worthy of note is the cause of the convulsion. Here again there is room for much discussion. It is a clinical fact that the nervous system of the pregnant woman is in a state of hyper-excitability. One observer explains the convulsions as being due to a spasm of the blood vessels of the brain, the liver, kidneys, from an irritation coming from the uterus. The toxins irritate the nerve centers, as do other specific poisons, strychnine, tetanus and others, but the toxin of eclampsia has a special attraction for the cortex of the anterior part of the brain. On the other hand, it may be well to bear in mind that eclampsia may occur without convulsions. This, however, is quite rare. The patient falls at once into a coma, which is almost always fatal. At autopsy a marked degeneration of the liver will be found.

Diagnosis.—I shall not go into minute details regarding the symptoms of eclampsia, for we are all familiar with the picture and, furthermore, the time is limited. The recognition of this condition usually offers no difficulty. It might be confused with epilepsy, hysteria, uremia and acute poisoning from strychnine and phosphorous. Careful inquiry into the history of the patient should usually prevent error. The other conditions present their own characteristics. In eclampsia the urine is almost always albuminous after the first or second convulsion; albuminuria precedes the convulsion in more than four-fifths of the cases. The percentage of urea and of most of the urine salts except the chlorides is not necessarily lowered, though the total excretion is diminished owing to a scanty secretion of urine. In most cases, the blood pressure is usually high.

Prognosis.—Always serious, as this condition is the most dangerous with which the obstetrician has to deal. The maternal mortality varies from 20 to 25 per cent, and that of the fetus from 33 to 50 per cent (Williams). The prognosis was generally considered more gloomy when the attacks came on before or during labor than after delivery. Recent reports have proven that the mortality has been just as high in the post-partum variety.

Treatment—Prevention.—One can speak

of rational prophylaxis when the real cause of a condition is known. Since we do not know the cause of eclampsia, our treatment must be placed along an empirical foundation. Even so, more can be accomplished by prevention than treatment, because, after the condition makes its appearance, pathological lesions have already gained a foothold. It is the pregnancy that favors the development of eclampsia, which may be rightly called a gestational toxemia. The prophylaxis in a general way covers the entire broad field of the conduct of the hygiene of pregnancy. Every physician should be thoroughly familiar with this phase of obstetrics and attach a more rigid importance than heretofore and demand a hearty support and co-operation of his patient. An ounce of prevention is worth a pound of cure, and a pound of co-operation is worth a ton of argument. Time not permitting, the writer shall not go into the special details regarding the diet, mode of living, urinalysis and associated measures pertaining to the prophylaxis of gestation.

Curative Treatment.—This varies with different men, some using medical measures along conservative lines, while others resort to radical operative procedures. The treatment may be divided into four great plans: sedative treatment; measures to reduce blood pressure; eliminative treatment; and the operative treatment. Results are much better in a hospital than in a home. Veit was the first to advocate the use of morphia in eclampsia. The patient should be isolated in a quiet semi-dark room and then treatment instituted. McPherson, of the New York Lying-in-Hospital, who formerly was a believer in the surgical treatment, is now a firm supporter in the conservative treatment. The following is his method: blood pressure is taken and a catheterized specimen of urine is secured. Hypodermatic injection of one-half grain morphine is given, her stomach is washed out, two ounces of castor oil is poured down the tube at the end of the lavage, and the patient is given a colonic irrigation of five gallons of 5 per cent glucose solution.

Venesection is done if the systolic blood pressure is over 175. He uses one-fourth grain morphine every hour until the respirations drop to eight per minute. He further claims that at this time the convulsions have usually ceased, the patient will have fallen into labor, and will be delivered normally or by an easy low forceps in a short time. In his report two years ago, fifty-five patients were treated by this method with a mortality of only 9 per cent.

No one can secure the best possible results by becoming fanatically attached to a single plan of treatment: no two patients are exactly alike and frequently certain modifications or added steps must be made to suit the individual case. With reference to venesection, it is best not to bleed them too much, for there may be a considerable loss of blood at the time of delivery and shock may ensue. On the other hand, if no venesection was performed, it is advisable to allow the patient to bleed just a little, rather than to check, since bleeding is one of the helpful means of cure. In giving morphine, the writer uses one-fourth grain every hour until the respirations range between 12 and 15. Other measures which are of extreme importance are catharsis and diaphoresis to produce elimination. Better results follow when the patient is placed under a portable sweat cabinet and subjected to a steam bath, than from the older plan of using the blankets. Croton oil, two minims in a teaspoonful of olive oil and allowed to trickle down the throat, will likewise prove beneficial. In the colonic irrigation, I use either glucose or sodium bicarbonate, repeating same every four or five hours. Ether or chloroform, if used at all to assist in controlling convulsions, should be done so sparingly.

The operative treatment, in case the patient is not delivered, is a question which varies considerably. Statistics show that with eclamptics treated by radical methods, the maternal mortality approaches an average of from 25 to 30 per cent, the fetal mortality 40 to 50 per cent. Several years ago surgical intervention was by far the method of choice. Like everything else, the style changes and at present there is a great tendency towards conservatism. Pains usually begin if the convulsions are at all severe, and labor is often rapid, when once begun. Theoretically, there is much to advise the operative delivery of a woman in eclampsia. It is a known fact that the convulsions are due to her condition: it is a common thing to note that after the delivery the convulsions usually clear up.

It would seem, then, that the immediate delivery ought to cut short these seizures, but as a matter of fact it does not always do so,

or, if there are no convulsions, the mortality may still be high. Convulsions may re-occur as late as the eighth day. There are many who advise Cæsarean section, vaginal hysterotomy, or accouchement force. The writer does not believe in Cæsarean section, except where eclampsia is complicated by a contracted pelvis or tumor formation. It must be borne in mind that women in this condition do not stand surgical operations well; we are dealing with a severe toxic and degenerative affair, and with the addition of a general anesthetic they easily succumb to shock. In the pre-eclamptic type it is well to administer one ounce of castor oil with ten grains of quinine and repeat five grains in three hours. The introduction of a bougie will usually assist in the production of labor.

I do contend, however, that if a patient is already in labor with a fair dilatation, it is best to insert a bag or perform manual dilatation and thus hasten delivery; or if with a full dilatation, a mid or low forceps may be employed, the amount of anesthetic, if used, being very small. During the convulsive attacks the patient must be protected against injury by the use of the restraining sheet. A clothespin well wrapped placed in mouth will prevent injury to the tongue.

Conclusion.—In the above statements, no claim is made to offer anything new but to strongly emphasize the point of conservatism, which I do believe is the choicest method to follow.

216 *East Franklin Street.*

Discussion.

Dr. Virginius Harrison, Richmond:—The subject of Dr. Bear's paper has been very clearly presented, but, nevertheless, I do not agree with him. The question of conservative treatment of eclampsia is correct in the majority of cases, because nature can take care of a great many of them. Strogenoff reports a mortality of 8.8%. Tweedy reports a mortality of 6%, but no other men have been able to obtain such a low rate. Like the Twilight Sleep, it can only be done by the men who originated the method. Zinke, of Cincinnati, advises all to go to see Potter and his work. DeLee says, "I went, I saw, but I am not convinced". In regard to the conservative treatment of eclampsia, if the pains are increasing in the multipara or even in the primipara, with a dilated cervix, indicating that nature can take care of the case, then I believe in conservatism; but with a rigid cervix and no attempt at delivery, with the blood pressure rising hourly, the albumen increasing rapidly, I believe the conservative cesarean section is safer for both mother and child.

We all know that in eclampsia cases sepsis plays a large part in mortality. We may successfully deliver the baby, but in a few days have death from sepsis. The patient has convulsions because she is suffering from toxemia. As Dr. Bear says, "the convulsions soon cease, under morphine," but the baby deceases. The rate of infant mortality, which he did not bring out, is very great. When you find that the albumen is increasing from day to day, or from hour to hour, and the blood pressure going up every day, that is a forewarning of immediate danger. On examination you find that the cervix is *uneffaced* and the os *undilated;* then I believe in cesarean section. Operative vaginal delivery leads to trauma and possible infection in an already toxic patient. Conservative cesarean sections can be done in 20 minutes, with a maternal mortality rate of about 2%, and the infant mortality rate should be *nil*, provided it is done before the mother or baby becomes septic, so that in a few cases where we have eclampsia in pre-attempted state, or convulsions started, we can save the baby. The operative mortality of delivery per vaginam in primiparae is about 40%; 25% of the babies are lost; low mortality, or 2% from cesarean. We may operate on some when unnecessary, but in the long run we save a large per cent of the women and babies.

Dr. R. B. James, Danville:—There is much prejuduce against giving morphine in these cases. We say morphine stops elimination. Elimination of what? We do not know the toxin that causes eclampsia, and it is going beyond our knowledge to say morphine prevents its elimination. So far as we know, morphine may actually promote its elimination. But we do know that morphine stops the convulsions, and often seems to neutralize the toxin that produces them. It is poor practice to be held back by an uncertain theory, when experience teaches us that so much good may be done by ignoring that theory and giving the drug freely.

As to doing the Cesarean section in these cases,—this may become popular, and in well equipped hospitals in many cases it is quite proper, but the country practitioner cannot undertake such operation and must depend upon more conservative methods. He finds morphine most helpful in these cases, rarely if ever doing harm.

Dr. M. P. Rucker, Richmond:—I am old enough to have seen various phases of the treatment of eclampsia. When I first graduated, my obstetrics was limited to traveling around after midwives, getting them out of their difficulties, and I saw a great deal of eclampsia. Accouchement forcé was the recognized treatment. Shortly afterwards cesarean section was the fad. Results were little better. Now on the out-patient service we are using the conservative treatment. If the students are willing to stick by the patient we treat her in her home, and most of them get well. Patients in 17th street bottom get well, whereas patients in the better residential sections with more energetic treatment die.

The trouble with us in considering the relative merits of the various methods of treating eclampsia is that we confuse statistics *that ought to be* with statistics *that are*. The statistics that show the smallest maternal mortality of any at all are those of the conservative treatment, whether they come from Petrograd, Dublin, or New York. I think the thing to do is to forget the patient is pregnant and treat her with morphine and whatever eliminative measures you can under the circumstances, if the patient is at home. I think it is always feasible to wash out the patient's stomach. I am very glad that Dr. Bear read his paper at this time, because in

carrying out the conservative treatment we are often interfered with by public sentiment demanding more active interference. I am very glad the subject was brought up at this time.

Dr. Joseph Bear, closing the discussion:—I wish to thank you gentlemen for bringing up this very elaborate discussion. From what Dr. Harrison said, it probably works better from a theoretical standpoint than from a practical one, because statistics have shown a high mortality of 25% to 30% on the part of the mother and a fetal mortality of 40% to 50%. I am still convinced that the conservative line is best to follow, unless I am otherwise shown from actual figures. In a goodly number of the pre-eclamptics, the condition can frequently be prevented if care is taken by the average physician in carrying out the prenatal work. Very often the doctor pays no attention to the important field of the hygiene of pregnancy and only sees the patient at the time of labor. Even in primiparae, when the prodromal symptoms occur, castor oil with quinine very often will accelerate labor and cut the attack short.

I am very glad the question of morphine treatment was brought up. We have been taught that morphine checks all secretions. This has been slightly modified. From a depression of the secretory center, almost all secretions are diminished, but this is a minor part in therapeutics. The sweat is increased, but not markedly so. But even with the secretions somewhat diminished, we are counteracting it by catharsis, diaphoresis (hot pack) and colonic irrigations,—all of which greatly tend to produce elimination. A short while back I heard some say that the operative treatment for eclampsia was the most ideal and could even be done under a local anesthetic. The reasons against the operation with a general anesthetic were outlined in my paper and, as for a local anesthetic, I cannot well see how it could be satisfactorily performed when in all probability the patient would be jumping about and too much time would be consumed and wasted.

MODIFIED PORRO-CESAREAN SECTION IN PRESUMABLY INFECTED CASES. REPORT OF A CASE.*

By VIRGINIUS HARRISON. M. D., Richmond, Va.

As we do not know how much the fetal head will mould, nor how much force will be exerted by the uterine and abdominal muscles in their effort to expel the fetus, then again we do not know how much resistance will be offered by the maternal pelvis and soft parts, nor can we predict in advance that the force of the muscles will overcome the resistance offered them. Until these conditions become measurable or approximately known we will meet with many surprises in obstetrical practice. How often have we had cases that promised, in our opinion, to give us a great deal of trouble, yet they were delivered spontaneously; on the other hand, we have all had cases that required a serious operation, when we had anticipated nothing more than a tedious labor. We cannot emphasize the fact too often, that every case of labor should be treated as a potentially operative one; then we would have less morbidity in the spontaneous ones, and less mortality in the operative cases.

I believe the pelvic measurements should be made; they are important. I also believe that we should guess at the size of the child's head, for the oftener we guess, the better guessers we become. Having made our guess at the size of the child's head, and having taken the measurements of the pelvis before the patient goes into labor, we are forewarned of our most difficult cases, and have them in a hospital where the proper treatment can be skillfully carried out.

Any case that shows much disproportion between the head and the pelvis, whether it be a small pelvis with a normal size head, or a normal pelvis with a very large head, may be a Cesarean section, and we should be especially careful not to infect the patient.

The risk of infection can be minimized by having the patient prepared for delivery before any internal examination is made. We should at the same time get our hands clean and put on rubber gloves that have been boiled, and limit our examination to the determination of the progress of labor and the probability of a spontaneous delivery. It is the neglect of these aseptic precautions that makes it necessary, *in a few cases*, to remove the uterus to save the life of both mother and child. Those who are expert at rectal examinations, or those who claim to be able to determine the progress of labor by abdominal palpation, should never have an infected genital tract. Classical Cesarean section can be done in twenty minutes, with less than two per cent mortality to the mother, and no mortality to the child, if they are in good condition at the time of operation. So we feel that we can relieve ourselves of responsibility in difficult labors, by turning the case over to the surgeon. If we let the patient have a long test of labor, make frequent examinations, attempt forceps or manual delivery, this means infection, and this will not be fair to the surgeon, do justice to the patient, nor will it be a creditable exhibition of our diagnostic ability, should a Cesarean section be decided

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upon. The object of this paper is to review and impress our knowledge of the danger of, and thereby prevent infection of, the genital tract of the pregnant woman, so that a classical Cesarean section, with a low rate of mortality, can be done, instead of other more difficult and dangerous methods of abdominal extraction.

Routh of London, in *The Journal of Obstetrics and Gynaecology* of the British Empire, January, 1911, has made a very complete review of 1,282 cases of Cesarean section, and I quote him:

"In the mortality statistics of the cases collected in this paper, it is seen that in cases of Cesarean section where attempts had been made to deliver by forceps, etc., or where repeated examinations had been made, the mortality was 22 out of 64, or 34.3 per cent; and in 166 cases, where it is stated that the patient was in labor, and the membranes had ruptured, but no attempt had been made to deliver, the mortality was 18, or 10.8 per cent. On the other hand, where the patient was in labor with membranes unruptured, the mortality was only 5, or 2.2 per cent; and in 245 cases not in labor the mortality was 9, or 3.6 per cent."

"From these data it seems clear that if frequent examinations and attempts at delivery have been made, the case is almost certainly septic, and should be treated as such."

As there are varying degrees of infection, frequently without any means of determining the nature of the infecting germ, nor to what extent it has permeated the tissues, we will attempt a working classification, viz:

First: Those septic cases that give distinct clinical symptoms of infection, such as elevated temperature, increased pulse rate, accompanied with the history of frequent examinations, and attempt at delivery by some method.

Second: The presumably infected cases. Those that have had a long test of labor, been examined frequently by those whose technic you do not believe to be safe. The waters may or may not be ruptured, and those cases where attempts have been made to deliver under conditions that would lead you to presume that infection is present, though the clinical manifestations may not be present.

Third: Possibly infected cases. These have had a long labor, waters have ruptured many hours, patient exhausted, numerous examinations but with no attempt at delivery, no fever nor any clinical symptoms of infection.

Having a case of labor with a disproportion between the head and the pelvis, the measurements being borderline, a living healthy child, the mother being infected, the indications are to save the child with as little danger to the mother as possible, and we have the following methods of extraction to select from:

Forceps;
Pubiotomy;
Classical Cesarean Section;
Trans-peritoneal Cesarean Section;
Extraperitoneal Cesarean Section;
Modified Porro-Cesarean Section (Stump dropped in peritoneal cavity);
Porro-Cesarean Section (Stump sewed in lower end of abdominal wound).

Forceps can usually be used with success, and are indicated where there is a reasonable hope that the child can be delivered uninjured, but very often the use of the forceps equals a craniotomy without the advantages of the latter operation, as the child is destroyed, and the maternal soft parts are so lacerated that the future morbidity of the woman is assured. On a dead child craniotomy is the only operation that is indicated.

Pubiotomy is never indicated in infection. In clean cases, this operation has a maternal mortality of four per cent, maternal morbidity of twenty per cent, and an infant mortality of six per cent.

When forceps and craniotomy are contraindicated on account of a living child to be saved, we must consider some form of abdominal delivery. In the first class, or certainly septic cases, all forms of abdominal operations are contraindicated, except in pelves that are too small for a child to be extracted even after craniotomy has been performed, or in obstruction of the pelvic outlet by tumors that cannot be removed or pushed up out of the birth canal, these conditions render the case almost hopeless, and the only chance is to do a Porro, and sew the stump in the lower end of the abdominal wound.

The second class, or presumably infected cases, gives a wider range of operations, as there is less infection than in the first class. There is no way at present to tell how far an infection has gone by smears taken from the

genital tract; it may be merely local, but we do not know this, nor do the germs found in the lower genital tract always mean that the same kind are in the upper tract. The operation called for will depend upon the experience of the operator in the various methods. The classical operation is attended by a high rate of mortality, thirty-four per cent, and an undetermined mortality for the child. Craniotomy had a maternal death rate of fifteen per cent; modified Porro twenty-five per cent. The woman has some rights in determining the method of operation. If she is an old primipara, long married and very desirous of a living child, or if she has lost one or more by forceps delivery, or is anxious to have one of opposite sex from one living, she may select to run a greater risk for a living child, in which case the modified Porro or the extraperitoneal operation might be done—preferably the former.

In the third class, the possibly infected cases, the class of cases that have been in labor for some time with many examinations, the membranes not necessarily ruptured but the conduct of the case by the attendant has been such as to make you suspect infection.

While the classical Cesarean section can be done in most of these cases, careful attention must be given that the peritoneum is soiled as little as possible. If in doubt, do a modified Porro, if section is decided upon.

Report of a Case.

Mrs. J. H. G.: white; aged 37: seventh pregnancy.

First four labors normal. Fifth and sixth were delivered by forceps, with a dead baby each time. On May 8, 1920, at 7 P. M., her seventh labor began, with rupture of the "waters"; labor pains came on, increasing in severity; the cervix became obliterated and the os dilated, but no advance of the head; in fact, it did not engage in the pelvis. Her physician called for consultation and an attempt was made at delivery, but the head refused to advance. They recognized that there was an exostosis at the brim, with a large child.

The patient was brought to Richmond and entered the Memorial Hospital at 3 P. M., May 9th. When I saw her in consultation with Drs. Fravel and Broaddus, I advised a modified Porro-Cesarean section, which was done by Drs. Stuart McGuire and Fravel at 4:30 P. M. A healthy uninjured boy, weighing ten pounds and two ounces, was extracted.

My reasons for such a radical operation were as follows: First, abdominal palpation revealed a large, vigorous and apparently normal child, whose head could not be pushed into the pelvis. This indicated Cesarean section, but, in addition to this, vaginal examination showed an exostosis at and near the symphysis, which narrowed the conjugata vera to about 9 cm. or less (this explains why in the first four labors there was no trouble, but since the development of the new bony growth, she had lost her fifth and sixth children, when extracted by forceps). In view of these facts, obtained by abdominal and vaginal examinations, it only remained to be determined what form of Cesarean section was the one to advise. This brings me to my second reason: the patient had been examined by two doctors and an attempt had been made at delivery, but no injury had been done to mother or child, though the waters had been ruptured for some time. I placed this case in class two, presumably infected cases. The modified Porro was advised instead of an extraperitoneal or transperitoneal, because these latter operations are not as free from danger as their name indicates, the extraperitoneal not infrequently becoming a peritoneal, and the same can be said of the transperitoneal; besides, the bladder is often injured and infection of the connective tissue occurs sufficiently often for one authority to advise that drainage be placed in the lower end of the wound. Again about twenty varieties of these operations have been described, indicating that the proper one has not been found.

The Porro, or the modified Porro, are not free from danger in the presence of infection. The woman referred to in this case developed a mild infection which lasted about ten days, but entirely recovered and left the hospital in about three weeks. The baby was watched with great care, even silver nitrate was put in each eye, which is not my routine in section cases, but on the fifth day developed a streptococcus infection of both eyes, which was soon cured. The eye infection of the child, the mild infection of the mother, made me conclude that, had a classical Cesarean section been done on this woman, the result would have been a dead woman in about five days, leaving a motherless infant, instead of a vig-

orous, uninjured boy and a well woman who has been relieved of the fear of future operative deliveries.

401 *North Allen Avenue.*

DISCUSSION.

DR. GEO. T. MYERS, Norfolk:—Dr. Harrison brought out in his paper some important points in obstetrics. I think the main important point that he failed to make clear, was that obstetrics as a science and art has been neglected by the profession from time immemorial. We are cognizant of the fact that if a woman places herself in our care from the beginning of pregnancy and after pelvimetry we elicit any abnormality of the obstetrical pelvis, or great disproportion between the foetus and pelvis, an exostosis of the promontory, tumors of large size that are an obstruction to the passages of the parturient, then I think that prior to the woman's expected date of labor, the classical cesarean operation should be performed.

In my opinion I do not think it is permissible to perform the Porro-operation in all cases of presumably infected ones. I am confident Dr. Harrison does not intend to convey this idea. In ruptured uterus and in uncontrollable hemorrhage following cesarean section, the Porro-operation is the one of election. If we will bear in mind the clarion note of Oliver Wendell Holmes, and the magnificent appeals of Semmelweis, and at all times in our obstetrical work have the fact of cleanliness impressed upon our minds, I do not think we will have to fear puerperal sepsis. I think this disease should be relegated to the past as history of obstetrics.

If a woman has been in labor and examined as often as is consistent for a correct diagnosis of the position and presentation under aseptic technique, I do not see the rationale of subjecting her to a Porro-operation on the supposition of infection. If the labor has been long and the pelvic measurements normal, the uterus fully dilated, head engaged, pains becoming infrequent and no expulsive power, I think the operation of election is forceps. If the head is above the brim and not engaged, internal podalic version is the operation to perform. When forceps are indicated version is contra-indicated and vice versa.

I recall a case where I was called in consultation. The patient had been examined quite a number of times, by her physician; after pelvimetry a contracted pelvis was found. The true conjugate was three inches and the T. D. O. three and one half inches; the patient had been in labor for 48 hours; I advised the classical Cesarean section as the operation for this case, which we did and the patient made an uneventful recovery, without any morbidity and had a living child as a reward.

Unless we are positive we have an active septicemia, I think we should give the patient in these presumably infected cases, some other obsterical operation than performing the Porro-Cesarean ad libitum. After a series of 29 Cesarean operations for the various obstetrical complications we are confronted with, I am convinced the different modifications of the classical operation have their place in the particular case in question.

DR. I. S. STONE, Washington, D. C.:—Dr. Harrison's paper would cause us to narrow the lines of discussion very closely. Given his rules for the selection of cases for Cesarean section, one must agree with him. But very rarely is human judgment so accurate as to enable many operators to obtain results such as Dr. Harrison's. I always discount a little what my friends claim to learn of the size of the child's head, and especially what is learned by rectal versus vaginal examination. I am not aware of having caused infection by a vaginal examination and I doubt the claims of those who say they can outline the position of the child's head by rectal as by the latter method. Finally, I am not so sure that there is need for such haste as the twenty-minute operation requires. Many of us require more time.

DR. M. P. RUCKER, Richmond:—These things Dr. Harrison talked about ought not to be. Upon the study of our cases more thoroughly, we can decide the kind of operation beforehand. We do not teach obstetrics properly. We turn out students who have seen perhaps 20 cases, and expect them to go out and manage cases without any help or complications. If we insist that delivery is not a normal thing and study the cases thoroughly, treating each case as a special case, we will then put obstetrics on the proper plane. Until we do that, we will have the difficulties that Dr. Harrison talked about. The question then, it seems to me, is to teach obstetrics better, as a branch of preventive measure. Of course the question of whether it is proper to do a Porro-Cesarean section or an extra-peritoneal one depends upon the individual doctor.

DR. W. A. PLECKER, State Registrar of Vital Statistics, Richmond:—I cannot think of obstetrics in these recent days without thinking of it from a preventive standpoint. The paper Dr. Harrison read applies splendidly to city service, where they can get to the cases under proper conditions. I am interested in the country people and country physicians, because I see in our reports the results of badly managed cases of obstetrics; and, in the position in which I am placed, I have the opportunity of attempting, so far as it is in my power, to prevent these cases of infection. I have endeavored to make as careful a study of this situation as it is possible to do, and find that throughout the State a very large proportion of puerperal infections are caused by insanitary handling by midwives. Forty per cent of deliveries in Virginia are in their hands and, in order to prevent the large number of unnecessary deaths, the Bureau of Vital Statistics has, with the consent of the State Health Commissioner, taken hold of this subject and is endeavoring to prevent midwives from making examinations. Our statistics so far have not been sufficient to base conclusions upon, but we are making progress.

We began work in 1917, and our statistics showed good results. In 1918, the influenza, with its complications, that is puerperal deaths combined with influenza, made it impossible to consider that year in our study. In 1919 we were able by this method to reduce the number of septic deaths from 191 in 1917 to 127, but again we find in 1920 our statistics are going back, and that infection deaths in Virginia are on the increase; so that I do not know whether to feel encouraged over the prospect of reducing it in this way or not. We appeal to every physician to assist in this work of preventing puerperal infection through midwives. Do it by emphasizing the instruction to every midwife that she is absolutely forbidden to make examinations. I think we are on the right track. We have the endorsement of physicians in Richmond and elsewhere, and have undertaken as one of our lines of public health work the reduction of the mortality rate of infection in child-birth. I hope to see the time when midwives do not make examinations.

We have a great many deaths from sepsis, even though the patient has never been seen by the midwife. This is one of the important things that ought to be impressed upon physicians,—to use every possible method to prevent infection. I remember that in 1885 nothing at all was taught about this. I believe if each physician would consider every obstetric case as a surgical case, and use every possible means to prevent infection, the mortality rate would be greatly reduced. I am confident of this. In the country the cases are away from a hospital and I think it is a good idea that we should have small hospitals in each county. If we can get the patient into the hospital, we can handle these cases throughout the State with much better results.

Dr. Virginius Harrison, closing:—In my paper I tried to impress the necessity of treating every case of labor as a potentially operative delivery, thereby preventing infection.

The Porro-Cesarean section must have a positive indication for a section, such as a child too large to pass through the pelvis, and second, we must have an indication for removal of the uterus, such as an infection of the uterus; with both indications, the mortality to mother and child will be less than delivery through an *infected contracted* pelvis.

Dr. Stone really agrees with me in regard to the diagnosis of the size of the child's head before delivery; as I said in my paper, I believed we ought to guess at the size, for the oftener we guessed the better guessers we became. I believe the abdominal palpation gives us the best method of determining the size of the child as well as its position and presentation.

In regard to the twenty-minute operations, I have had twenty Cesareans done, none of which took over that time, all mothers recovered and only one child was lost, this being a case of complete separation of the placenta in the last weeks of pregnancy, before labor set in. Dr. Stone was so interested in his operations he did not watch his clock.

STATISTICS FROM 2341 CLINICAL CASES OF OBSTETRICS.*

By GREER BAUGHMAN, M. D., F. A. C. S., Richmond, Virginia.

Professor of Obstetrics, Medical College of Virginia.

The statistics upon which this paper is based are obtained from the outside obstetrical service of the Medical College of Virginia, under the immediate supervision of Dr. M. Pierce Rucker, to whom is due the improvement in the clinical reports in the last few years.

It has only been in the last few years that there has been complete co-operation between the obstetrical work in the dispensary and the outside service. At present, except in the case of an unusual emergency, all the women to be delivered have to go through a course of examination and observation at the dispensary before they are eligible for delivery in the outside service. Under instruction from one of the regular obstetrical staff, these cases are examined by the students, regularly designated in rotation, and appropriate treatment is carried out. Arrangements are made for their entrance into the hospital if pathology develops and they are visited in their homes by a visiting nurse, who lists them at the dispensary.

The calls are received at the Memorial Hospital. The students are notified, obtain their kit from the hospital and, after seeing the case, report progress to Dr. Rucker. He sees the case with the students and demonstrates to them. The information obtained at the dispensary is added to the delivery history and the post delivery chart, and the whole is turned in for correction and for grading. The obstetrical histories have a definite grading mark and are used to compute the passing mark of the senior students. The work of the students in the dispensary is graded in the same way.

During the summer months there is no difficulty in getting students to work in the obstetrical department and dispensary, because each student must deliver twenty cases under supervision. Many students prefer to do their work in the summer, since it is graded in the same way as that during the session.

The statistics cover the period from 1910 until the end of the session 1920. In 1917 it was found more practical to bind in volumes the work of the session rather than from January to December, consequently we have eleven volumes covering ten years.

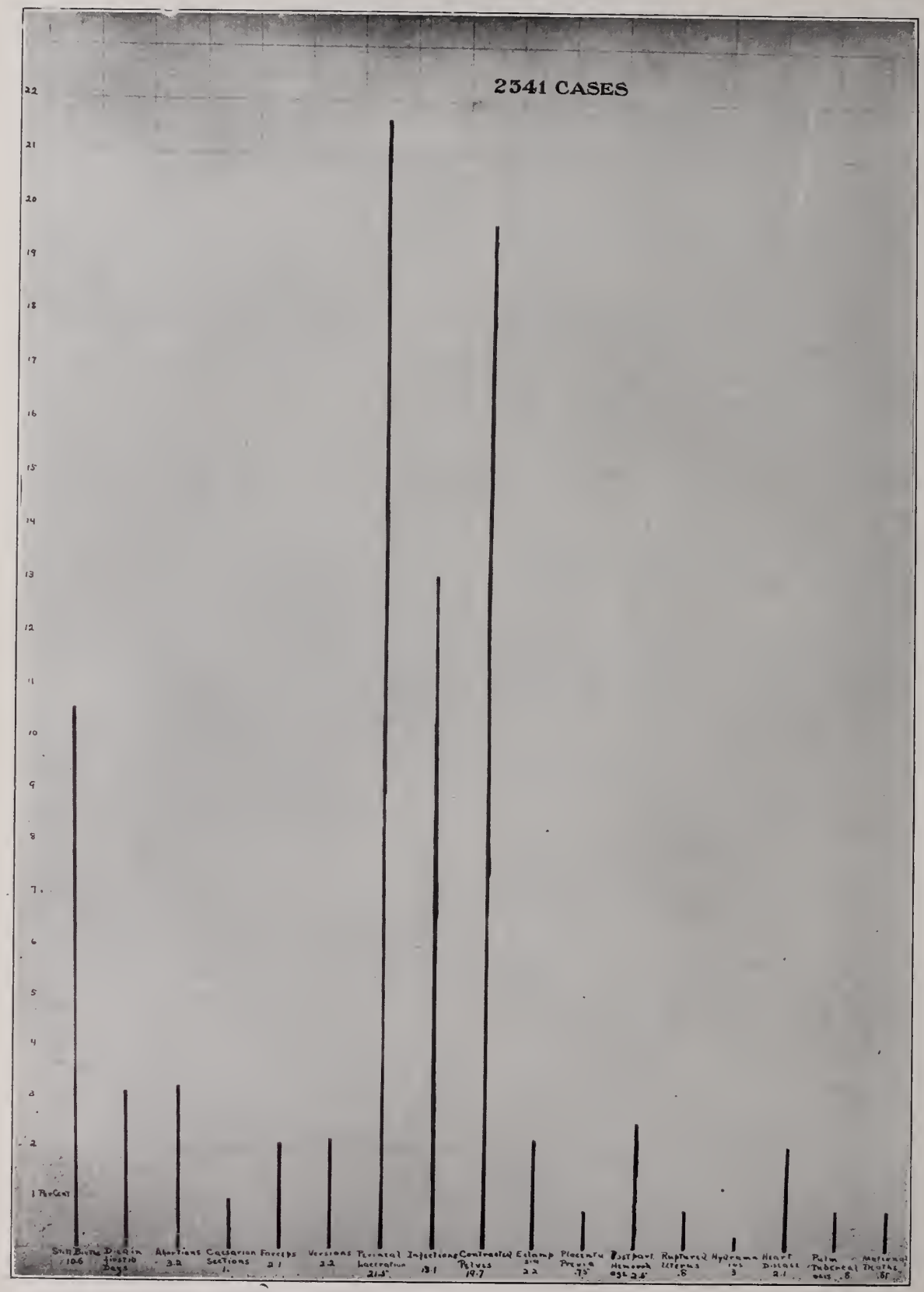
In 1918-1919 and 1919-1920 the normal increase in the total number of cases failed, because we forced all of the cases to report to the department through the dispensary, but mainly because many men were in service and the dispensary patients had become pay patients because of the good times.

We call a contracted pelvis one in which the Baudelocque is 19 cm. or less, the transverse at the outlet is 8 cm. or less, or the conjugata diagonalis is 10 or less. We place in the infection column every case that had a temperature of 100.4 or over. Every nick of the perineum is placed in the perineal laceration column.

Of the 2,341 cases, 1,846 were definitely diagnosed so far as presentation and position were concerned.

* Read before the Richmond Academy of Medicine and Surgery, November 9, 1920.

Read by title before the fifty-first annual meeting of the Medical Society of Virginia, October 26-29, 1920.


2341 CASES
22
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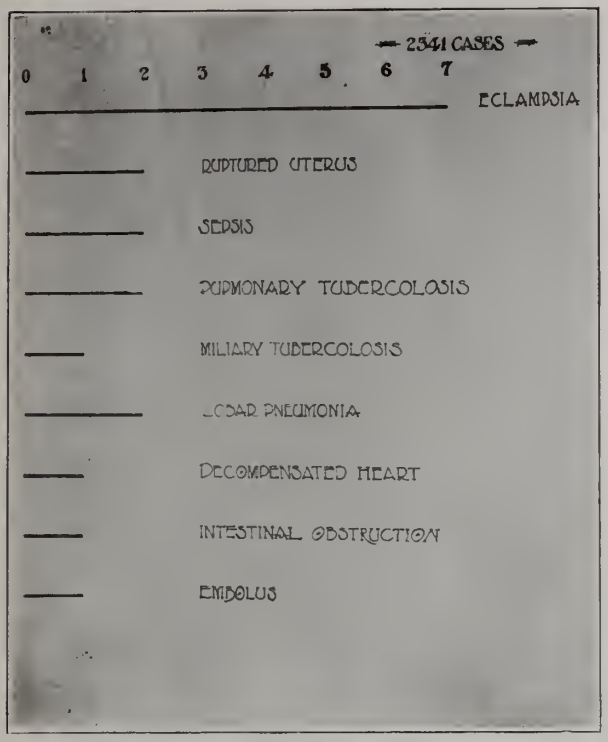
4
3
2
1 Per Cent
Still Births 10.6
Died in first 10 Days
Abortions 3.2
Cæsarian Sections 1.
Forceps 2.1
Versions 2.2
Perineal Lacerations 21.5
Infections .31
Contracted Pelves 19.7
Eclampsia 2.2
Placenta Previa .75
Post Part. Hemorrh. 2.4
Ruptured Uterus .8
Hydramnios .3
Heart Disease 2.1
Pulm. Tubercul. .8
Maternal Deaths .81



Our statistics are:

Vertex	93.050
Face and Brow	.637
Breech	4.264
Transverse	1.08
Twins	.97

Schroeder in several hundred thousand cases reported:

Vertex	95.
Face	.6
Breech	3.11
Transverse	.56

Markoe in 51,000 cases reported:

Vertex	94.2
Face	.48
Breech	3.9
Transverse	.9

Of the 1,846 cases in which the presentation and position were diagnosed, 1,718 were vertex cases, divided as follows:

L. O. A.	73.515
L. O. P.	.814
R. O. P. and R. O. A.	22.473
R. O. P. unconverted	3.198

Dubois in 1,913 cases reported:

L. O. A.	71.
L. O. P.	.63
R. O. A.	2.87
R. O. P.	25.6

In the face, brow, breech and transverse, the number of cases is too few to make the drawing of differential statistics of any value.

The percentage of still-births is high. This is due to the fact that every child born dead, that was old enough to be viable, is included in the list. Our still-birth statistics are steadily improving because every expectant mother has a Wassermann blood examination made upon her and, if positive, treatment is at once begun, no matter how far her pregnancy may be advanced.

The percentage of maternal deaths is high, but not when the cases are analyzed.

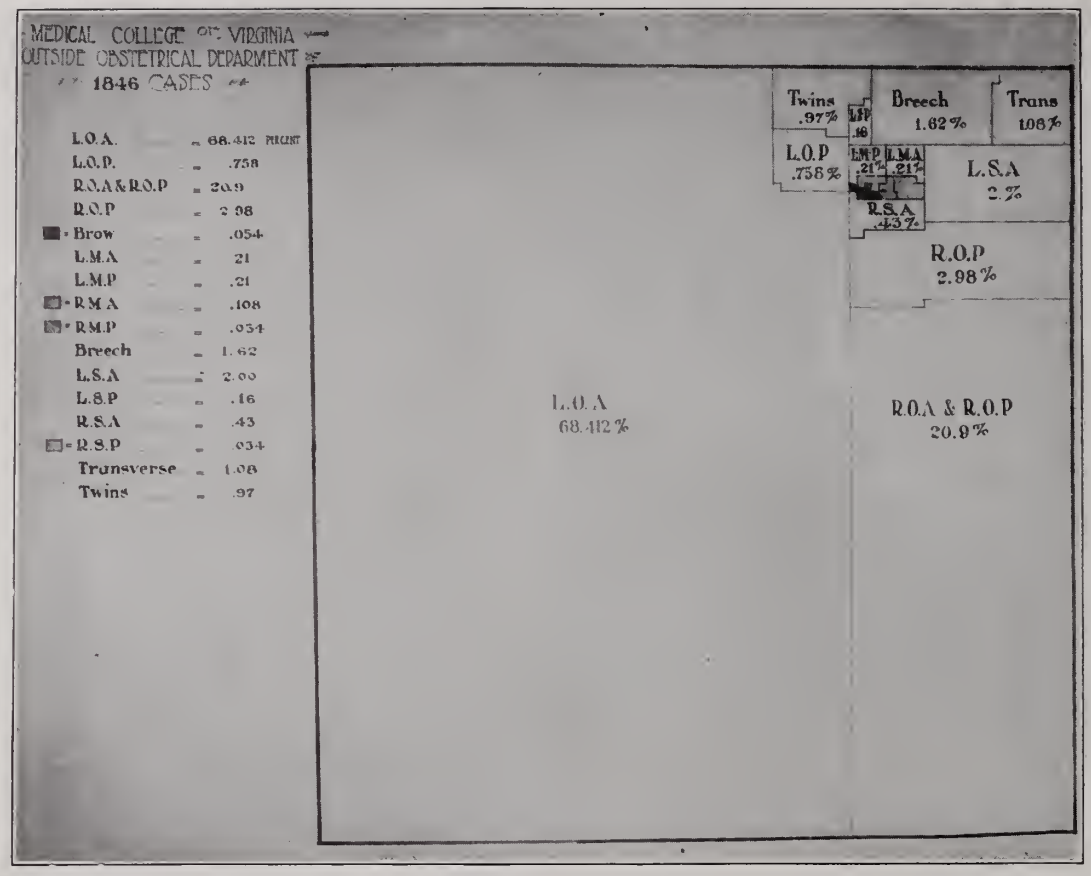
One case, No. 291, died of acute miliary tuberculosis two days after delivery. Two died of pulmonary tuberculosis, one, No. 1037, twenty-four hours after delivery, the other, No. 208, six hours after delivery. Two died of lobar pneumonia, one, No. 572, had pneumonia when she was first seen and died five days after delivery, the other, No. 824, four days after delivery.

One, No. 868, died four days after delivery from a decompensated heart. She had a nephritis and double mitral murmur, but did not have a convulsion. No. 740 had a contracted pelvis with high forceps. The following day she began to suffer with intestinal obstruction. She was operated upon. Bands of old adhesions were found as the cause of the obstruction and she died upon the eighth day.

No. 946 was a primipara and had a contracted pelvis, but was delivered without aid in nine hours and five minutes and died of an embolus five hours after delivery. This case might be considered a case of death due to pregnancy, and with the seven eclampsia, two ruptured uterus, and two sepsis, would make a mortality of twelve due really to pregnancy.

If the seven medical deaths be excluded, then the mortality is reduced from .81 to .51, which is about the under-average of maternal deaths.

Of the cases of convulsions, No. 233 was a primipara that had convulsions before and after delivery. She delivered herself and remained unconscious for twenty-four hours after delivery when she died. The baby died after twelve hours. No. 451 had convulsions before and after delivery. She had a labor of eighteen hours and was delivered by low forceps. The child lived. No. 659 had con-



vulsions before and after delivery. She was delivered by high forceps of a dead baby. She died after two days, never having regained consciousness. No. 801 was a primipara with convulsions before and after delivery. She had a version with extraction. The baby lived. She died after forty-eight hours without regaining consciousness. No. 932 was a primipara with a slightly contracted pelvis, who had convulsions before and after delivery. She was delivered by Cæsarean section of a live baby that lived only twenty-four hours, and she died after forty-eight hours without regaining consciousness. No. 360 was a primipara who was hurried to the hospital in the midst of convulsions. She died while being examined before anything could be done for her. A section was done upon her with the hope that the baby might be saved, but it was born dead. No. 359 was in extremis with convulsions and was hurried to the hospital, but died before anything could be done for her. A section was done at once, but the baby was born dead.

Case No. 70 was a ruptured uterus that was seen after rupture. She was a four-para. A porro-Cæsarean section was done, but she died on the fourth day. No. 1360 had a transverse presentation, Bandl's ring, contracted pelvis. She was a three-para. A version was done but the uterus was ruptured and the patient died before a section could be performed. The baby was still-born.

Case No. 280 was a five-para with a transverse presentation. A midwife attempted a version. The child was still-born and the mother died five days afterwards from sepsis. No. 445 was a primipara with a flat rhachitic pelvis. A Cæsarean section was done. She died on the sixth day of sepsis. The child lived.

26 *North Laurel Street.*

THE RELATION OF INJURIES OF THE LEG AND FOOT TO TRAUMATIC FLAT FOOT.*

By EDWARD E. FFILD, M. D., F. A. C. S., Norfolk, Va.
Orthopedist to St Vincent's Hospital and Florence Crittenden Home.

In order to discuss this question intelligently,

* Read at a meeting of the Southside Virginia Medical Association.

it is necessary to review briefly the anatomy and physiology of the parts. The knee joint is formed only by the articulation between the femur and the head of the tibia, the fibula not entering into the make-up of the joint, and the patella acting only as a sesamoid bone.

The lower ends of the tibia and fibula form the mortise which receives the astragalus and completes the ankle joint. The astragalus also articulates with the os calcis below and with the scaphoid in front. The os calcis articulates in front with the cuboid bone, which articulates in front with the 4th and 5th metatarsal bones, and to the inner side with the external cuneiform and scaphoid bones. This bone artitulates with the three cuneiform bones which complete the tarsometatarsal joint by articulating with the 1st, 2nd and 3rd metatarsal bones.

The bones of the leg are held in close union by the interosseous membrane and ligaments, the superior and inferior tibio-fibular ligaments, while the capsular ligament practically surrounds the ankle joint, connecting the bones of the leg with the astragalus. The inner portion of this ligament is reinforced by a number of fibres forming the deltoid ligament; while three distinct fasciculi strengthen it on the outer side—the external lateral ligament. The scaphoid and cuboid are united by strong ligaments to the astragalus and os calcis. Other ligaments connect the midtarsal bones with each other and with the metatarsal bones. It is the strain on these ligaments that causes the pain in so-called flat or weak feet.

Of course, the ankle joint is further strengthened by the tendo achillis and the other tendons surrounding the joint.

The normal line of weight bearing runs down the front of the leg and, if the toes are not pronated or turned in, falls directly over the second toe or between it and the great toe. If the subject has pronated feet, it falls to the inner side of the great toe.

In the normal foot, the weight rests on the tripod consisting of the heel and the heads of the first and fifth metatarsal bones, the outer edge of the sole resting practically on the floor. Therefore, if the foot is pronated, greater stress is thrown on the midtarsal ligaments, particularly those between the scaphoid and internal cuneiform bones.

Fractures of the bones of the leg are easy of diagnosis. However, their extent and character should be verified by the X-ray; for fracture of both bones are rarely at the same level or sufficiently transverse, to be held in proper apposition; and it is obvious that improper alignment would not place the proper stress on the bones and ligaments of the feet. Should the foot be pronated or everted, the stress would fall on the astragalo-scapho-cuneiform ligaments, thereby causing the so-called flat or weak foot. This, however, would rarely happen in transverse fractures of the tibia where the fracture is carefully reduced. Spiral fractures of the tibia are usually caused by indirect violence and accompanied by fracture of the fibula at a higher level and in line with that of the first named bone. Davidson, of Chicago, states that this fracture occurs when the subject is standing on both feet and turns suddenly, the cross breaking strain fracturing the bone at its smallest and weakest portion (between the middle and lower thirds) and running downward and inward; the fibula breaks at a higher point and becomes impacted. In these circumstances, he states that it is difficult to reduce the fracture and hold the fragments in proper apposition without operation and fracture of the fibula at the same level as the wound. My own experience bears out this contention, although I do not approve of open treatment of fractures when possible to avoid it.

Davidson's plan is to open up the site of the fracture and insert a bone plug taken from the crest of the tibia at a higher level, after breaking the fibula at the level of the tibial break. He then closes the wound with catgut sutures. I believe it would be better to use a boiled ex-bone plug or plate after the method of Gallie, of Toronto, and thus avoid further traumatism. Davidson advises leaving the impacted fracture of the fibula *in statu quo*.

In Pott's fracture, the fibula is broken usually from three to four inches above the external malleolus and there is often a fracture of the inner malleolus or a larger fragment of the tibia. This occurs also in many cases of so-called sprain of the ankle. There is in addition a widening, of the mortise, with more or less dislocation of the foot. Unless the X-ray shows a sufficient comminution of a fragment of bone in the joint, interfering with locomotion, it is best to set the foot in

a position of inversion and at right angles with the leg, maintaining the position with a plaster cast. After a week or ten days, gentle passive motion should be instituted every few days, reapplying the cast each time, or strapping with adhesive plaster. An excellent dressing is the celluloid cast as used by Shands and Abbott. Should stiffness of the joint remain, baking and massage will be indicated. In sprains of the ankle, without fracture, strapping with adhesive will usually be sufficient; especially if the foot be kept in a position of inversion.

512 *Taylor Building.*

THE MORAL OBLIGATION OF THE MEDICAL PROFESSION TO HUMANITY.*

By EDWIN M. MANN, M. D., Kenbridge, Va.

When a man begins the practice of medicine, he answers one of the highest obligations in life, because he is dealing with human life, and with each life a soul is at stake. On the physical condition of her people depends absolutely the mental, moral and spiritual condition of a nation. On these conditions of a country depend the rank and standing with the nations of the world. Health and character make a strong and resistant nation. That is what we must have if we are going to hold our destiny under the responsibilities we assume as the stronghold of civilization. It was the fulfillment of our moral obligations to mankind which made the world stand amazed at the remarkable achievement of our medical profession in Panama, which made forever the name of Gorgas an honored word throughout the world.

The State's welfare and the protection of all mankind against preventable diseases is the foremost and highest duty of our State medical profession. The greatest and most cruel tragedy in life is for a man to choose medicine as his life's work, and when he enters into his professional duties, to forget or ignore his moral obligations to humanity. We should further realize that these moral obligations to our State and country are to join actively in all public efforts for the betterment of our State and nation, especially in regard to its morality. We should also remember that these sacred duties of our profession are not confined to our individual patients alone. We should check ourselves against commercialism, for commercialism unrestrained serves greatly to contribute to human misery and suffering. We who fail in this may stand well socially and financially; we may sit "snug and sedate" in our churches, but as sure as a just God reigns, we will not hear even so much as the echo of "well done" in the day of judgment.

Many will say that this fight for the prevention of disease should be done by the health officer or visiting nurse. This is very true when you have full-time health officers and visiting nurses, and when we have these officers and are fully conscious that they are neglecting or ignoring the duties of their office, then it becomes a moral obligation to report the same.

What are we to do when we have no full-time health officer or visiting nurse? In such cases some of us must do the work that should be done by a sanitary inspector. Really, it is the duty of each and every physician to perform this service when the occasion arises. It is a professional obligation of each of us to do his part.

To the medical profession belongs the credit for founding preventive medicine, but, on the success in putting these discoveries into actual use, largely depends the value of these discoveries.

We have no right to allow either commercialism or social or financial matters to interfere with our public duties in their work of eliminating preventive disease. I deem it much more of an honor to ourselves and to the medical profession to instruct the public mind in regard to contracting or preventing diseases, than it is to fuss or complain against some poor fellow for having a few tin cans or a little pile of trash in his back yard.

It should be our greatest ambition in this campaign against preventable diseases to give our every aid in the accomplishment of its purpose. Therefore, let us direct our efforts where they will prove of the greatest value. Some one has said, "If the people knew more, they would do more."

The present public health problem is largely one of education. Ours is not a people that can be driven to do things blindly; there must not only be a reason, but the people must know that reason before we can expect their intelligent co-operation with our efforts in their behalf. This is literally true, and to explain

* Read at a meeting of the Southside Virginia Medical Association.

this reason to the public mind undeniably falls to the duty of the medical profession.

"If this America of ours was worth fighting for and dying for against the German guns, it is worth fighting for and dying for against any enemy that menaces it." Yes, it often takes more courage to live for a cause than to die for it.

There is a decided uncertainty in this question of preventing diseases, and there is always a grave danger in uncertainty. If a power were to declare war against our country, we would not sit quietly and wait until they began the destruction of homes and murdering our wives and children. The first step would be to use all our power and force in preventing their landing on our soil. We manfully fought the Germans with a loss of about 50,000 lives. The present enemy, preventable diseases, has not only threatened us, but the great "germ army" has secured a foothold in the very vitals and foundation of our nation.

America spent about thirty billion dollars for democracy, an average of $300 per capita on the whole population. We owe about twenty-six billion dollars as a war debt, which is about $266.00 per capita. We pay each year for fire and police protection about $2.00 per capita: about $8.50 per capita for education: yet, when we come down to the very foundation of the life of our country—public health—we find that it receives only 29 cents. And yet, last year 300,000 American babies died before they were a year old: 150,000 of them did not live a month. Fifty thousand women died in childbirth last year. Two hundred thousand adults died in the United States last year of tuberculosis. Over a million of our people are sick with this disease, which means 100,000 more deaths, or 10 per cent to die.

Out of our entire army, only 23 died in nineteen months of typhoid fever, a disease of inexcusable filth. In our civilian life, 30,000 perished in the same time from eating and drinking filth.

Of all the men drafted for service during the war, thirty-five per cent were reported as physically unfit. Of this terrible blight on our national efficiency, venereal disease was the greatest single cause. Most of these cases were brought into the army, and were not contracted there. The average community was responsible. In some States, as many as one man in every ten was thus diseased and, in half the States of the Union, the percentage was so large as to be alarming.

Goldsmith ominously describes us as a land "where wealth accumulates and men decay." True or not true, it is the way that others see us.

The horror of war will be but a dream compared to the horror caused by the germ diseases, because they weaken the mental, moral, financial and spiritual condition of our country. Do not let us wait until death steals into our homes and takes some of our loved ones. If our manhood fails to check destruction of human life by preventing diseases, then shall we hear the wail of affliction, suffering and misery throughout the State from mothers and children. Then shall we hear from the desolate mother the cry, "My God, my God, why hast thou forsaken me?" Then shall the manhood of the State see the writing on the wall, in their conscience, "The traitor to humanity is the most accused."

When I am gone, I should want no other monument than the humble things that I have accomplished for our profession: and, no greater praise than to have it said, "He gave the best years of his life in the discharge of his moral obligation to humanity."

TONSILLECTOMY A MAJOR OPERATION.

By F. J. MORRISON, M. D., Suffolk, Va.

The more tonsillectomies I do and the more patients I see who have had the operation done by others, which after all is not a tonsillectomy but a tonsillotomy in a great number of cases, the more I am convinced that the operation is a major one, and should be done under a general anesthetic, and prepared for as any other major surgical procedure.

I believe the shock of the operation under a local anesthetic is greater in most cases than the danger of a general anesthetic, especially ether, providing ether is given by one skilled in its administration. The operation can be done more thoroughly and, if there is much hemorrhage, it can be more easily controlled if the patient is fully anesthetized. The nausea and vomiting are nothing to be compared to the gagging, spluttering and horror of a thorough tonsillectomy under a local anesthetic, which is certainly not a minor operation from the standpoint of the patient.

Were it possible to collect the mortality statistics in tonsil operations and compare them to the mortality of simple appendectomies, I am confident that the former would be in the majority. I am now taking out all tonsils under a general anesthetic and look upon the operation as being in the major class. Instead of leading the patient's family to believe it an office operation without danger, they are frankly told the complications which might arise. You might do a thousand and have one death, but your reputation is more damaged because of the fact that the laity and some of the profession look upon a tonsillectomy as a trivial operation in the class with in-growing nail and incising an abscess.

It is not my purpose to magnify out of all proportion the tonsil operation, nor am I a throat specialist but, the earlier it is classed as a serious operation, the safer the patient and the more secure the operator's position.

The vomiting following ether might predispose to hemorrhage, but I have had only four cases, and two of those were delayed—one seventeen hours and the other exactly one week. It might not be amiss to suggest the treatment which has proven efficient: Morphine 1/8 to 1/4 gr. hypodermically, normal horse serum 10 c.c., repeated in two or three hours if necessary, and the local application of Monsel's solution. In every case, the above has in due time checked the bleeding—but, I will admit, after some anxious moments.

Having just had a severe hemorrhage in a young, delicate girl from a family of bleeders, although her coagulation time was three minutes, I believe I am in a better frame of mind to more strongly emphasize the stand I take.

Many Affected With Color Blindness.

It is stated that about 55 of every 1,000 persons are more or less color-blind. The most usual symptoms seem to be an inability to distinguish between blue and green. Color blindness is said to be more common among educated than uneducated people, and an odd fact is that musicians are more liable to this affliction than any other class or profession.

She—"How kind of you to bring me those lovely flowers. They are so beautiful and fresh. I think there is some dew on them."

He—"Yes (in great embarrassment), there is, but I am going to pay it off tomorrow."—Selected.

Public Health

In the Tuberculosis Field.

INSTITUTIONAL WORK.

Physicians interested in doing institutional work, and young physicians to whom the experience now would prove invaluable later, may care to know that there are vacancies on the medical staff at Catawba Sanatorium for two assistants. These positions carry good salaries and afford an excellent opportunity for experience in all phases of tuberculosis work except surgery. Roentgen-ray studies are made in consultation with prominent specialists of Virginia and comparisons are had with readings by specialists connected with Trudeau Sanatorium at Saranac Lake. There are approximately three hundred cases constantly undergoing treatment at Catawba Sanatorium. The Sanatorium has a well equipped X-ray department. Artificial pneumothorax is the subject of continued study and application; laboratory research is an interesting feature of the work.

INTERESTING AND THOUGHT-INSPIRING.

Krause, Allen A., (Am. Review of Tuberculosis, 1920) asserts that if the average sanatorium stay of tuberculosis patients could be extended from six months, the present figure, to two or three years, mortality and arrestment figures would be reversed.

This is a statement worth serious thought, originating as it does, with a man who has made as thorough a study of the subject of tuberculosis as any member of the profession, and who has written as entertainingly and instructively as any modern. It brings to the foreground immediately the truism that the tuberculosis problem is essentially economic. No other pathological condition has so many ramifications. Recovery in most pathological conditions is dependent upon the skill of the attending physician. In tuberculosis recovery only has its beginning in the skill of the attending physician. In other conditions the case probably will have a successful outcome without any dependence upon the intelligence or financial resources of the patient. In tuberculosis lack of intelligence, or lack of financial resources, may determine the outlook and the outcome.

Observation of some 4,000 cases serves to give endorsement to the declaration of Krause on the value of time in the treatment of the

condition under consideration. There are other distinguished authorities for the view he holds. Brown, in his excellent epigrams, has well said that two years' treatment are worth four times as much as one year, and that four years are worth eight times as much as two.

Contact with cases, such as are to be found at state sanatoria, has demonstrated the extreme difficulty of impressing this truth. Many cases present such environmental conditions that continuation of proper routine following discharge from the sanatoria becomes peculiarly endurance-testing. Others, especially those which show prompt response to treatment, are as difficult to hold in check as a high-spirited horse. For this reason, those cases which respond at first more slowly, show a final result much more gratifying—the old, old case of hare and tortoise. If one is to expect a lasting result, one must induce the patient to acquire both the properties of a tortoise and a jelly-fish.

Board of Health Endorsement.

The Tuberculosis Committee of the State Board of Health has voted "unanimous and enthusiastic" endorsement of the Tuberculosis Foundation of Virginia, Incorporated, to which reference was made in this department last month. The quoted words are from the announcement made by the Board of Health. There has been considerable discussion of the chain letters which are bringing funds to the Foundation. Some critics have said the letters are an expensive method of raising money. Friends of the Foundation have replied that the expense is so fairly distributed among contributors and the amount of individual contributions of such size that the plan at least works no hardship on anybody. They add that, largely through this source, it is already possible to maintain year in and year out, for all time, one patient under sanatorium care, and the fund is steadily growing. Aside from the care of indigent consumptives, the Foundation trustees have plans for research work in the field of tuberculosis in Virginia.

B. L. Taliaferro.

Speaking of Education.

One lady in a small town, to another lady, ditto—"Why should I go to see that film the Michigan Department of Health are showing, "How Life Begins. I've had seven children." —(Mich.) Public Health.

Proceedings of Societies

The Warwick County Medical Society

Held its annual meeting in Hotel Warwick, Newport News, December 14, and elected officers and heard important medical discussions. Dr. R. A. Davis presided and Dr. D. W. Draper was at the secretary's desk. The following officers were elected: President, Dr. F. A. Sinclair; vice-president, Dr. D. W. Draper; secretary, Dr. W. O. Poindexter; members of the board of censors, Drs. C. P. Jones, Jos. T. Buxton, R. A. Davis, L. E. Stubbs, and Geo. J. Williams, all of Newport News.

A most interesting paper on Lethargic Encephalitis was presented by Dr. C. B. Courtney and this brought forth a good discussion on the part of the members.

The Society endorsed the boy scout movement and voted $50 to the cause of the movement in Newport News.

The members recommended increasing the field of activities of the Society and bringing to the attention of the counties in the First Congressional District the high grade medical and surgical work done in that city.

Meetings are held regularly on the second and fourth Tuesdays. The Society numbers among its forty-one members all of the legally qualified white physicians of good standing in the community.

At the conclusion of the meeting, the retiring president, Dr. R. A. Davis, entertained the Society with a buffet supper.

The Southside Virginia Medical Association

Held its sixty-eighth quarterly session in Suffolk, on December 14th, Dr. D. L. Harrell, of that city, presiding. About thirty members were present, and a most instructive and interesting program was rendered. Dr. W. T. Gay, of Suffolk, read the paper for general discussion, which was entitled "Infection vs. Metabolic Arthritis." It was much enjoyed and very freely discussed.

This being the regular annual meeting, the following officers were elected for 1921: President, Dr. E. L. Kendig, Victoria; Vice-Presidents: Drs. T. M. Raines, Wakefield; John M. Williams, Petersburg; E. M. Mann, Ken-

bridge, and W. C. Harman, Dolphin; Secretary-Treasurer, Dr. R. L. Raiford, Sedley (re-elected).

The Southside is a wide-awake Society and looks forward to 1921 as the best year in its history.

R. L. Raiford,
Secretary-Treasurer.

The Seaboard Medical Association

Of Virginia and North Carolina, at its twenty-fifth annual session in Elizabeth City, N. C., December 7th-9th, selected Norfolk, Va., as the place of meeting in December, 1921, and elected the following officers: President, Dr. E. C. S. Taliaferro, Norfolk; Vice-Presidents: Drs. Jos. L. Sprnill, Sanatorium, N. C.; Jos. T. Buxton, Newport News; T. S. McMullen, Elizabeth City, N. C., and A. M. Burfoot, Fentress, Va.; and re-elected Dr. Geo. A. Caton, New Bern, N. C., treasurer, and Dr. Clarence Porter Jones, Newport News, secretary. A number of papers on a variety of subjects were presented, and the meeting was both profitable and interesting.

Richmond Academy of Medicine and Surgery.

At the meeting of the Academy, held on the 14th ultimo, the following officers were elected to serve during 1921:

President, Dr. T. D. Jones; First Vice-President, Dr. R. D. Garcin; Second Vice-President, Dr. R. W. Miller; Third Vice-President, Dr. J. M. Hutcheson; Secretary, Dr. Mark W. Peyser; Assistant Secretary, Dr. E. H. Terrell; Treasurer, Dr. Howard Urbach; Librarian, Dr. G. Paul LaRoque.

Judiciary Committee—Drs. Virginius Harrison, A. L. Gray, W. L. Peple, McGuire Newton, Greer Baughman and W. H. Higgins.

Mark W. Peyser,
Secretary.

The Prince Edward County Medical Society

Held its December meeting with Dr. Susan B. Price at the State Normal School Infirmary, Farmville. After the scientific part of the evening's program was concluded, the members were delightfully entertained with refreshments by their hostess.

Correspondence

A Vital Problem in Medical Education.

To the Physicians of Virginia:

The Anatomical Board of Virginia has faced difficulties during the past two years, growing largely out of the great war, that threaten to obstruct, if not to stop, the teaching of anatomy in Virginia with scientific accuracy. The trouble is that bodies for dissecting purposes have been unavailable in sufficient number. The condition became so acute during the summer of 1920, when only one body was received from April until August, that efforts were made to enlist the co-operation of the physicians of the State. The writer addressed the assembled doctors at their annual meeting in Petersburg, and this circular is sent to the members of the profession in Virginia to elicit their co-operation in securing unclaimed bodies.

The condition that exists in Virginia is not a local one, but prevails throughout the country. The writer has received information from Washington, Baltimore, Philadelphia and Chapel Hill, that similar conditions exist in Pennsylvania, Maryland, the District of Columbia, and North Carolina, although the condition is most acute in smaller places.

The cause of this condition is not far to seek, when we consider the sudden increase in earning power among the poor, the unprecedented lowering of the death rate following the influenza epidemic, and the unusual activity of certain forms of burial societies. The condition may change but it may never return to the pre-war state, and provision should be made so that an adequate number of bodies may be obtained under any circumstances.

This may be done by a simple law allowing the Anatomical Board all unclaimed bodies in the State of Virginia, and placing a heavy penalty on the transportation of such bodies across the borders of the State, without the consent of the Anatomical Board. Such a law exists in other States, even in the Philippines, and the Warburton Anatomy Act of Parliament, passed on Monday, February 27, 1832, after a five-minute speech by Lord Macaulay, shows that Virginia is almost 100 years behind "effete England," and that it may

be necessary to call on a Lord Macaulay in our Legislature.

It may not be out of place to apply a part of Lord Macaulay's speech to the present situation by slight alterations. The parts in parentheses are not in the speech.

"Sir, I cannot, even at this late hour of the night, refrain from saying two or three words. Most of the observations of the honorable member from Preston I pass by, as undeserving of any answer before an audience like this. But on one part of his speech I must make a few remarks. We are, he says, making a law to benefit the rich, at the expense of the poor. Sir, the fact is the direct reverse. This is a bill which tends especially to the benefit of the poor. What are the evils against which we are attempting to make provision? Two especially; that is to say, the practice of (grave robbing) and bad surgery. Now to both these the poor alone are exposed. That a man has property, that he has connections, that he is likely to be missed and sought for, are circumstances that secure him against the (grave robber). The more wretched, the more lonely, any human being may be, the more desirable prey is he to these wretches.

"Again, as to bad surgery: this is, of all evils, the evil by which the rich suffer least, the poor most. If we could do all that in the opinion of the member from Preston ought to be done, if we could prevent disinterment, if we could prevent dissection, if we could destroy anatomy, if we could force every student of medical science to go to the expense of a foreign education, on whom would the bad consequences fall? On the rich? Not at all. As long as there is (in Baltimore, in Philadelphia, in New York) a single surgeon of eminent skill, a single surgeon who is, to use the phrase of the member from Preston, addicted to dissection, that surgeon will be in attendance whenever a (man of wealth is to be cut for appendix or gall bladder, stone or prostate. The wealthy) will always be able to procure the best medical assistance. Who suffers by the bad state of the Russian school of surgery? (Lenine and Trotsky?) By no means. The whole evil falls on the peasantry. If the education of a surgeon should become very expensive, if the fees of surgeons should consequently rise, if the supply of regular surgeons should diminish, the sufferer would be, not the rich, but the poor in our country villages, who would be again left to mountebanks, and barbers, and old women, the charms and quack medicine. The gentleman talks of sacrificing the interests of humanity to the interests of science, as if this were a question about squaring the circle, or the transit of Venus. This is not a mere question of science; it is not the unprofitable exercise of an ingenious mind; it is a question between health and sickness, between ease and torment, between life and death. Does the honorable gentleman know from what cruel sufferings the improvement of surgical science has rescued our species? I will tell him one story, the first that comes into my mind. Leopold, Duke of Austria, fell under his horse and his leg was crushed. The surgeons said the limb must be amputated: but none of them knew how to amputate it. Leopold, in his agony, laid a hatchet on his thigh, and ordered his servant to strike with a mallet. The leg was cut off, and the Duke died of the gush of blood. Why, there is not a bricklayer who falls from a ladder who cannot obtain surgical assistance infinitely superior to that which the sovereign of Austria could command in the twelfth century. I think this is a bill which tends to the good of the people, and which tends especially to the good of the poor. Therefore, I support it. If it is unpopular, I am sorry for it. But I shall cheerfully take my share of its unpopularity. For such, I am convinced, ought to be the conduct of one whose object it is, not to flatter the people, but to serve them."

Attention is directed to sections of the present law as found in the Code of Virginia, Chapter LXXX, Regulating the Procuring and Distribution of Dead Bodies for the Promotion of Medical Science.

"Sec. 1778.—Notification, and Delivery of Bodies.—All officers, agents and servants of every *city* in the State, and of every almshouse, prison, morgue, hospital, jail, or other public institution in such cities having charge or control of any dead human body which is required to be buried at the public expense, and every officer or other person having charge or control of the body of any person upon whom the sentence of death for crime has been executed under the law, shall notify the said board, or such person or persons, as may, from

time to time, be designated by the board or their duly authorized officer or agent, whenever and as soon as any such body comes to his or their possession, charge, or control; and shall, without fee or reward, deliver such body, and permit the said board and its agents, and such physicians and surgeons as may from time to time be designated by the board and shall have given the bond required by section 1781, to take and remove such body to be used for the advancement of medical science.

"Sec. 1783.—Penalty.—If any person fail or refuse to perform any duty imposed upon him by this chapter, he shall, for every such failure or refusal, be fined not less than one hundred nor more than five hundred dollars."

The present law enables the Anatomical Board to obtain a few bodies annually from the Penitentiary, and a few others in a hit or miss way from Richmond, Norfolk and Lynchburg. There is no reason why any city, county, or institution in the State should have to provide for the burial at public expense of any unclaimed body. The body may be shipped to the Anatomical Board, Richmond, Va., in a plain wooden box after the body has been wrapped in a cotton sheet saturated with 3 per cent. carbolic acid, and all expenses will be paid by the Anatomical Board.

The purpose of this circular is to win the co-operation of the doctors of Virginia in securing unclaimed bodies until such time as the Legislature shall pass a law that will provide adequate material for scientific and teaching purposes. The question is one of vital importance, because, if the State is going to provide medical instruction of premier quality in the reorganized institution of medicine, be it in Richmond or in Charlottesville, one of the prime necessities will be to procure ample material for teaching and research. It is unthinkable that we should return to the days of Burking and grave robbing, as anyone will admit who will take the time to read "The Development of Grave Robbing in England," by G. Canby Robinson, or "The Barred Road to Anatomy," by Howard A. Kelly, both in the Johns Hopkins Hospital Bulletin, February, 1905, and July, 1908, respectively. If anyone is interested to know more about the troubles and needs of Anatomical Laboratories, they may like to read the papers on "Anatomical Material: Its Collection and Its Preservation at the Johns Hopkins Anatomical Laboratory," by Frank P. Mall, in the Johns Hopkins Hospital Bulletin, February, 1905, and "The Anatomical Laboratory at the University of California," by Joseph Marshall Flint, in the same number of the Bulletin. Rather than return to primitive methods of securing anatomical material it were better to destroy both medical schools in Virginia.

May we hope for the earnest interest and active co-operation of the doctors of Virginia in the education of the laity and in securing more bodies for dissection without delay? The need is urgent; nay, the necessity is acute. Please act at once and continue to act.

R. Bennett Bean,
University of Virginia; President of the Anatomical Board of Virginia.

John W. Broadnax,
Medical College of Virginia; Secretary of the Anatomical Board of Virginia.

Medical Men Needed By A. R. C.

44 East 23rd Street,
New York City, December 13, 1920.

To the Editor:

The American Red Cross is desirous of enlisting for service among the children of Eastern Europe a number of medical men.

The service is particularly suitable for recent graduates of hospitals who are more or less free to spend a year in the practice of their profession in Europe.

The remuneration will be sufficient to represent an adequate salary and living expenses. All transportation will be furnished.

A few men who have had experience in pediatrics and public health work are also needed to take charge of groups of workers.

These men are needed within the next few weeks. Please address at once, giving age, details of education and medical experience to

Charles W. Berry, M. D.,
American Red Cross.

Plan to Aid Those Crippled From Infantile Paralysis.

69 Schermerhorn Street,
Brooklyn, N. Y.

To the Editor:

The New York Committee on After-Care of Infantile Paralysis Cases published and dis-

tributed the report of "The Survey of Cripples in New York City."

Our aim has been to send this report to those in a position of responsibility in agencies for cripples and to all those who might have a general interest in cripples, and in plans for their aid. The undersigned would be glad to know of anyone who has been overlooked and would appreciate suggestions for further possible distribution of the report.

ROBERT STUART,
Director, N. Y. Committee on After-Care of Infantile Paralysis Cases.

Medical Education

Educational Institutions.

Educational institutions, particularly those which are connected with a college or a university, are peculiarly sensitive to outside criticism, and particularly to any statement of the circumstances of their own conduct or equipment which seems to them unfavorable in comparison with that of other institutions. As a rule, the only knowledge which the public has concerning an institution of learning is derived from the statements given out by the institution itself, in formation which, even under the best circumstances, is colored by local hopes, ambitions, and points of view. A considerable number of colleges and universities take the unfortunate position that they are private institutions and that the public is entitled to only such knowledge of their operations as they choose to communicate. In the case of many medical schools the aversion to publicity is quite as marked as it is reputed to be in the case of certain large industrial trusts. A few institutions questioned the right of any outside agency to collect and publish the facts concerning their medical schools. The Foundation was called upon to answer the question: Shall such an agency as the Foundation, dedicated to the betterment of American education, make public the facts concerning the medical schools of the United States and Canada?

The attitude of the Foundation is that all colleges and universities, whether supported by taxation or by private endowment, are in truth public service corporations, and that the public is entitled to know the facts concerning their administration and development, whether those facts pertain to the financial or to the educational side. We believe, therefore, that in seeking to present an accurate and fair statement of the work and the facilities of the medical schools of this country, we are serving the best possible purpose which such an agency as the Foundation can serve; and, furthermore, that only by such publicity can the true interests of education and of the universities themselves be subserved. In such a reasonable publicity lies the hope for progress in medical education.

I wish to add with pleasure that notwithstanding reluctance in some quarters to furnish information, the medical schools of the colleges and universities, as well as proprietary and independent medical schools, have generally accepted the view just stated and have seconded the work of the Foundation by offering to those who were engaged in this study every facility to learn their opportunities and resources; and I beg to express the thanks of the trustees of the Foundation to each of these institutions for the co-operation which it has given to a study which, in the very nature of the case, was to bear sharply in the way of criticism upon many of those called on for co-operation.

The report which follows is divided into two parts. In the first half the history of medical education in this country and its present status are set forth. The story is there told of the gradual development of the commercial medical school, distinctly an American product, of the modern movement for the transfer of medical education to university surroundings, and of the effort to procure stricter scrutiny of those seeking to enter the profession. The present status of medical education is then fully described and a forecast of possible progress in the future is attempted. The second part of the report gives in detail a description of the schools in existence in each State of the Union and in each province of Canada.

It is the purpose of the foundation to proceed at once with a similar study of medical education in Great Britain, Germany, and France, in order that those charged with the reconstruction of medical education in America may profit by the experience of other countries.

The striking and significant facts which are here brought out are of enormous consequence not only to the medical practitioner, but to every citizen of the United States and Canada; for it is a singular fact that the organization

of medical education in this country has hitherto been such as not only to commercialize the process of education itself, but also to obscure in the minds of the public any discrimination between the well trained physician and the physician who has had no adequate training whatsoever. As a rule, Americans, when they avail themselves of the services of a physician, make only the slightest inquiry as to what his previous training and preparation have been. One of the problems of the future is to educate the public itself to appreciate the fact that very seldom, under existing conditions, does a patient receive the best aid which it is possible to give him in the present state of medicine, and that this is due mainly to the fact that a vast army of men is admitted to the practice of medicine who are untrained in sciences fundamental to the profession and quite without a sufficient experience with disease. A right education of public opinion is one of the problems of future medical education.

The significant facts revealed by this study are these:

(1) For twenty-five years past there has been an enormous over-production of uneducated and ill trained medical practitioners. This has been in absolute disregard of the public welfare and without any serious thought of the interests of the public. Taking the United States as a whole, physicians are four or five times as numerous in proportion to population as in older countries like Germany.

(2) Over-production of ill trained men is due in the main to the existence of a very large number of commercial schools, sustained in many cases by advertising methods through which a mass of unprepared youth is drawn out of industrial occupations into the study of medicine.

(3) Until recently the conduct of a medical school was a profitable business, for the methods of instruction were mainly didactic. As the need for laboratories has become more keenly felt, the expenses of an efficient medical school have been greatly increased. The inadequacy of many of these schools may be judged from the fact that nearly half of all our medical schools have incomes below $10,000, and these incomes determine the quality of instruction that they can and do offer.

Colleges and universities have in large measure failed in the past twenty-five years to appreciate the great advance in medical education and the increased cost of teaching it along modern lines. Many universities desirous of apparent educational completeness have annexed medical schools without making themselves responsible either for the standards of the professional schools or for their support.

(4) The existence of many of these unnecessary and inadequate medical schools has been defended by the argument that a poor medical school is justified in the interest of the poor boy. It is clear that the poor boy has no right to go into any profession for which he is not willing to obtain adequate preparation; but the facts set forth in this report make it evident that this argument is insincere, and that the excuse which has hitherto been put forward in the name of the poor boy is in reality an argument in behalf of the poor medical school.

(5) A hospital under complete educational control is as necessary to a medical school as is a laboratory of chemistry or pathology. High grade teaching within a hospital introduces a most wholesome and beneficial influence into its routine. Trustees of hospitals, public and private, should therefore go to the limit of their authority in opening hospital wards to teaching, provided only that the universities secure sufficient funds on their side to employ as teachers men who are devoted to clinical science.

In view of these facts, progress for the future would seem to require a very much smaller number of medical schools, better equipped and better conducted than our schools now as a rule are; and the needs of the public would equally require that we have fewer physicians graduated each year, but that these should be better educated and better trained. With this idea accepted, it necessarily follows that the medical school will, if rightly conducted, articulate not only with the university, but with the general system of education. Just what form that articulation must take will vary in the immediate future in different parts of the country. Throughout the eastern and central states the movement under which the medical school articulates with the second year of the college has already gained such impetus that it can be regarded as practically accepted. In the southern states for the present it would seem that articulation with the four-year high school would be a reasonable starting-point for the future. In time the development of secondary

education in the south and the growth of the colleges will make it possible for southern medical schools to accept the two-year college basis of preparation. With reasonable prophecy the time is not far distant when, with fair respect for the interests of the public and the need for physicians, the articulation of the medical school with the university may be the same throughout the entire country. For in the future the college or the university which accepts a medical school must make itself responsible for university standards in the medical school and for adequate support for medical education. The day has gone by when any university can retain the respect of educated men, or when it can fulfil its duty to education, by retaining a low grade professional school for the sake of its own institutional completeness.

If these fundamental principles can be made clear to the people of the United States and of Canada, and to those who govern the colleges and the universities, we may confidently expect that the next ten years will see a very much smaller number of medical schools in this country, but a greatly increased efficiency in medical education, and that during the same period medical education will become rightly articulated with, and rightly related to, the general educational system of the whole country.

In the suggestions which are made in this report looking toward the future development of medicine, it ought to be pointed out that no visionary or impossible achievement is contemplated. It is not expected that a Johns Hopkins Medical School can be erected immediately in cities where public support of education has hitherto been meager. Nevertheless, it is quite true that there is a certain minimum of equipment and a minimum of educational requirement without which no attempt ought to be made to teach medicine. Hitherto not only proprietary medical schools, but colleges and universities, have paid scant attention to this fact. They have been ready to assume the responsibility of turning loose upon a helpless community men licensed to the practice of medicine without any serious thought as to whether they had received a fair training or not. Today, under the methods pursued in modern medicine, we know with certainty that a medical school cannot be conducted without a certain minimum of expense and without a certain minimum of facilities. The institution which attempts to conduct a school below this plane is clearly injuring, not helping, civilization. In the suggestions which are made in this report as to what constitutes a reasonable minimum no visionary ideal has been pursued, but only such things have been insisted upon as in the present light of our American civilization every community has a right to demand of its medical school, if medicine is to be taught at all.

It seems desirable also in connection with both the medical school and the university or college to add one word further concerning the relation of financial support to efficiency and sincerity. Where any criticism is attempted of inadequate methods or inadequate facilities, no reply is more common that this: "Our institution cannot be judged from its financial support. It depends upon the enthusiasm and the devotion of its teachers and its supporters, and such devotion cannot be measured by financial standards."

Such an answer contains so fine a sentiment and so pregnant a truth that it oftentimes serves to turn aside the most just criticism. It is true that every college must ultimately depend upon the spirit and devotion of those who work in it, but behind this noble statement hides most of the insincerity, sham, and pretense not only of the American medical school, but of the American college. The answer quoted is commonly made by the so-called university that, with an income insufficient to support a decent college, is trying to cover the whole field of university education. It is the same answer that one receives from the medical school which, with wholly inadequate facilities, is turning out upon an innocent and long-suffering community men who must get their medical education after they get out of the institution. In many of these ill manned and poorly equipped institutions there is to be found a large measure of devotion, but the fact remains that such devotion is usually ill placed, and the individual who gives it loses sight of the interests of education and of the general public in his desire to keep alive an institution without reason or right to exist.

It will, however, be urged by weak schools that the fact that an institution is ill manned and poorly equipped is inconclusive; that in the time devoted to the examination of a single school it is impossible to do it justice. Objection of this kind is apt to come from schools

of two types,—ineffective institutions in large cities, and schools attached to colleges in small towns in which clinical material is scarce. In my opinion the objection is without force. A trained observer of wide experience can go directly to the heart of a problem of this character. The spirit, ideals, and facilities of a professional or technical school can be quickly grasped. In every instance in which further inquiry has been made, the conclusions reached by the author of the report have been sustained.

The development which is here suggested for medical education is conditioned largely upon three factors: first, upon the creation of a public opinion which shall discriminate between the ill trained and the rightly trained physician, and which will also insist upon the enactment of such laws as will require all practitioners of medicine, whether they belong to one sect or another, to ground themselves in the fundamentals upon which medical science rests; secondly, upon the universities and their attitude towards medical standards and medical support; finally, upon the attitude of the members of the medical profession towards the standards of their own practice and upon their sense of honor with respect to their own profession.

These last two factors are moral rather than educational. They call for an educational patriotism on the part of the institutions of learning and a medical patriotism on the part of the physician.

By educational patriotism I mean this: a university has a mission greater than the formation of a large student body or the attainment of institutional completeness, namely the duty of loyalty to the standards of common honesty, of intellectual sincerity, of scientific accuracy. A university with educational patriotism will not take up the work of medical education unless it can discharge its duty by it; or if, in the days of ignorance once winked at, a university became entangled in a medical school alliance, it will frankly and courageously deal with a situation which is no longer tenable. It will either demand of its medical school university ideals and give it university support, or else it will drop the effort to do what it can only do badly.

By professional patriotism amongst medical men I mean that sort of regard for the honor of the profession and that sense of responsibility for its efficiency which will enable a member of that profession to rise above the consideration of personal or of professional gain. As Bacon truly wrote, "Every man owes a duty to his profession," and in no profession is this obligation more clear than in that of the modern physician. Perhaps in no other of the great professions does one find greater discrepancies between the ideals of those who represent it. No members of the social order are more self-sacrificing than the true physicians and surgeons, and of this fine group none deserve so much of society as those who have taken upon their shoulders the burden of medical education. On the other hand, the profession has been diluted by the presence of a great number of men who have come from weak schools with low ideals both of education and of professional honor. If the medical education of our country is in the immediate future to go upon a plane of efficiency and of credit, those who represent the higher ideals of the medical profession must make a stand for that form of medical education which is calculated to advance the true interests of the whole people and to better the ideals of medicine itself.

There is raised in the discussion of this question a far-reaching economic problem to which society has as yet given little attention: that is to say, What safeguards may society and the law throw about admission to a profession like that of law or of medicine in order that a sufficient number of men may be induced to enter it and yet the unfit and the undesirable may be excluded?

It is evident that in a society constituted as are our modern states, the interests of the social order will be served best when the number of men entering a given profession reaches and does not exceed a certain ratio. For example, in law and medicine one sees best in a small village the situation created by the over-production of inadequately trained men. In a town of two thousand people one will find in most of our States from five to eight physicians where two well trained men could do the work efficiently and make a competent livelihood. When, however, six or eight ill trained physicians undertake to gain a living in a town which can support only two, the whole plane of professional conduct is lowered in the struggle which ensues, each man becomes intent upon his own practice, public health and sanitation are neglected, and the ideals and standards of the profession tend to demoralization.*

The Truth About Medicine

During November the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

L. A. Van Dyk:
Benzyl Benzoate.
Benzyl Benzoate, 20 per cent.
Benzyl Benzoate, 20 per cent aromatic.
The Heyden Chemical Co.:
Vargol.
Intra Products Co.:
Benzyl Alcohol.
Ven Sterile Solution Benzyl Alcohol.

NEW AND NONOFFICIAL REMEDIES.

Benzyl Benzoate.—Van Dyk.—A brand of benzyl benzoate (see New and Nonofficial Remedies 1920, p. 49) complying with the N. N. R. standards. L. A. Van Dyk, New York, N. Y.

Benzyl Benzoate.—Van Dyk 20 per cent.—Each 100 Cc. contains benzyl benzoate—Van Dyk 20 Cc., and alcohol 80 Cc.

Benzyl Benzoate.—Van Dyk 20 per cent Aromatic.—Each 100 Cc. contains benzyl benzoate—Van Dyk, 20 Cc.; oil of orange, 0.74 Cc., and alcohol, 79.26 Cc.

Benzyl Alcohol.—Ipco.—A brand of benzyl alcohol (see New and Nonofficial Remedies 1920, p. 27), complying with the N. N. R. standards. Intra Products Co., Denver, Colo.

Ven Sterile Solution Benzyl Alcohol 4 per cent 2 Cc.—Each ampoule contains benzyl alcohol-Ipco 4 per cent in physiological solution of sodium chloride, 2 Cc. Intra Products Co., Denver, Colo.

Vargol.—A compound of silver and a derived albumin containing not less than 20 per cent of silver. For the action and uses of Vargol, see general article on Silver Preparations under Silver Protein Preparations, Argyrol Type, New and Nonofficial Remedies, 1920, p. 310.) Heyden Chemical Co., New York, N. Y. (Jour. A. M. A., Nov. 27, 1920, p. 1499.)

PROPAGANDA FOR REFORM.

A Council on Pharmacy and Chemistry for the Netherlands.—The minister of labor of the Netherlands officially inaugurated, on September 1, the government Instituut voor Pharmaco-Therapeutisch Onderzoek, which seems to be modeled after the Council on Pharmacy and Chemistry of the American Medical Association. The minister of labor remarked in his opening address that the Netherlands has had a permanent pharmacopeia commission since 1899. But this does not attempt to keep pace with the flood of new remedies, and the government has finally heeded the appeals of the Netherlands Medical Association and the Pharmaceutical Association and has founded this institute. The Council on Pharmacy and Chemistry of the Netherlands is to have the support and backing of the government; the Council on Pharmacy and Chemistry of the American Medical Association has only the backing of the medical profession (Jour. A. M. A., Nov. 6, 1920, p. 1279).

*From Introduction, by Henry S. Pritchett: The Carnegie Foundation. For the Advancement of Teaching Bulletin number Four, 1910.

Misbranded Venereal Nostrums.—The following products have been the subject of prosecution by the federal authorities on the ground that the therapeutic claims made for them were false and fraudulent; Musser's Capsules (Musser-Reese Chemical Co.), consisting essentially of copaiba, balsam and oil of santal with indications of oil of cubebs and oil of mace. Dr. Sanger's Capsules (Edward J. Moore Sons, Inc.), consisting essentially of copaiba, cubebs, santal oil, matico, licorice root and magnesium oxid. Rid-It Caps (S. Pfeiffer Mfg. Co.), consisting essentially of salol, oils of juniper and sassafras, turpentine, a fixed oil and coloring matter. Black and White Capsules (Wilson Drug Co.), consisting of capsules containing hexamethylenamine and of capsules containing a mixture of volatile oils, including cubebs and copaiba. Benetol (Benetol Co.), consisting essentially (in agreement with a previously reported analysis by the A. M. A. Chemical Laboratory) of alphanaphthol, soap, glycerin, water and traces of essential oils and alcohol. G-U-C Capsules (Hollander-Koshland Co.), consisting of a sulphurated oil with volatile oils, including copaiba, cinnamon and santal oils. Merz Santal Compound (Merz Capsule Co.), consisting of balsam, copaiba, cassia, sandal wood oil and a sulphurated Oil. Enoob Antiseptic Injection and Capsules (Tropical Co-operative Co.), the "injection" being essentially a solution of phenol, menthol, thymol, boric acid and zinc sulphate in water, and the "capsules" consisting essentially of cubebs, copaiba, gum turpentine and pepsin with indications of santal oil. White Swan Injection (Stacy Chemical Co.), essentially a watery solution of boric acid, salts of aluminum, zinc and ammonium, glycerin and phenol with bismuth subgallate in suspension (Jour. A. M. A., Nov. 6, 1920, p. 1285).

Helping the Council.—There are many physicians who, while figuratively patting the Council on Pharmcy and Chemistry on the back, do nothing to aid its efforts. On the other hand, there are men in the profession who give the Council active support. Such a man wrote to a pharmaceutical concern that he was receiving advertising concerning its products and suggested that until these products had been accepted by the Council, it was a waste of postage to send this. He explained that he depended entirely on the Council in such matters as these (Jour. A. M. A., Nov. 6, 1920, p. 1275).

Chaulmoogra Oil.—Chaulmoogra Oil is obtained by expression from the seeds of an East Indian tree, Taraktogenos kurzii. Closely related oils are obtained from Hydnocarpus wightiana Blume, and H. anthelmintica Pierre. This class differs from other known oils in being composed chiefly of the glycerol esters of two unsaturated fatty acids, named chaulmoogric acid and hydnocarpic acid. In India, chaulmoogra oil has been used both orally and externally in the treatment of leprosy since prehistoric times. Tourtoules used the oil subcutaneously in 1899. V. D. Heiser used the oil in 1914 for the treatment of leprosy by intramuscular injection. Leonard Rogers used orally a mixture of the fatty acids from the oil, which he called gynocardic acid, and later used the sodium salts of these acids subcutaneously (1916), and later on intravenously. Hollman and Dean employed the ethyl esters of the fatty acids from the oil in 1919 (Jour. A. M. A., Nov. 13, 1920, p. 1361).

Iron, Arsenic and Phosphorus Compound.—The Council on Pharmacy and Chemistry reports that Hypodermic Solution No. 13, Iron, Arsenic and Phosphorus Compound (Burdick-Abel Laboratory), was found unacceptable for New and Nonofficial Remedies for the following reasons: 1. It does not contain ferrous citrate as claimed; instead, the iron is in the ferric condition, apparently in the form of the unofficial and unstandardized "iron citrate green" for which there is no evidence of superiority over the official iron and ammonium citrate. 2. Its name gives no information on the form in which the iron, the arsenic or the phosphorus occurs therein. The term "arsenic" does not indicate that the preparation contains the mild cacodylate. Nor does the term "phosphorus" tell that it contains the practically inert sodium glycerophosphate. 3. The preparation is unscientific, because (a) it is irrational to prescribe iron and arsenic in fixed proportions; (b) there is no evidence that the hypodermic or intramuscular administration of iron has any advantage over its oral administration, and (c) glycerophosphates have not been shown to have properties other than inorganic phosphates, and hence the administration of sodium glycerophosphate as a hematinic is illogical (Jour. A. M. A., Nov. 13, 1920, p. 1358).

Parathesin Not Admitted to N. N. R.—The Council on Pharmacy and Chemistry reports that the local anesthetic ethyl paramino-benzoate was first introduced as "Anesthesin" or "Anaesthesin"; that the product is not patented in the United States, and that it may be manufactured by any firm which chooses to do so. In order that a common name for the drug might be available, the Council coined the short, easily remembered and descriptive name "Benzocaine." As the term "Anesthesin" had become a common name for the drug, the Council also recognized this as a synonym for benzocaine. While the Council had previously recognized the brand of benzocaine manufactured by the H. A. Metz Laboratories, Inc., under the name "Anesthesin," this firm requested recognition of the product as "Parathesin." As the use of one substance under several names causes confusion and retards rational therapeutics, the Council's rules provide against the recognition of proprietary names for nonproprietary, established drugs. For this reason, and because the legitimate interests of the manufacturer may be safeguarded by appending his name or initials to the common name, benzocaine or anesthesin, the Council refused recognition to the designation "Parathesin" (Jour. A. M. A., Nov. 13, 1920, p. 1358).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities: Dr. Clifton's Brazilian Herbs (Clifton Drug Co.), sold under therapeutic claims which were false and fraudulent. Her-Vo (Her-Vo Mfg. Co.), sold with therapeutic claims which were false and fraudulent. Acetylo-Salicylic Acid Tablets (James and Annis), containing acetanilid but no acetylsalicylic acid (Jour. A. M. A., Nov. 13, 1920, p. 1359).

More Truth About Saccharin.—It has been asserted that ingestion of saccharin increases the catalase content of the blood; that catalase increases oxidation in the animal organism, and hence that the use of saccharin by diabetics might be of value. However, the alleged content of catalase remains improbable and unproved. Further, recent investigations show that administration of saccharin, even in huge amounts, does not increase oxidation in the animal body. Saccharin is neither a food nor a potent drug. Its usefulness in dietotherapy is limited to the function of taste (Jour. A. M. A., Nov. 13, 1920, p. 1347).

Vaccines for Common Colds.—There is no scientific evidence that common colds can be prevented by the use of vaccines, despite the glowing recommendations of vaccine makers and the patter of the detail man. Colds characterized by catarrhal inflammation of the mucous membranes of the nose and the throat are caused by various organisms. The organism concerned in one epidemic is different from that in another. It is impossible to anticipate what organism is about to invade the household or community. Inoculation of mixed vaccine fails to product immunity (Jour. A. M. A., Nov. 13, 1920, p. 1361).

"Lepso"—Epilepsy Cure.—Like most epilepsy "cures," Lepso was found by the A. M. A. Chemical Laboratory to be essentially a bromid mixture. It was found to contain the equivalent of 51 grains of potassium bromid to the dose (Jour. A. M. A., Nov. 20, 1920, p. 1443).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities in charge of the enforcement of the Food and Drugs Act: Stearns' Santolods (Frederick Stearns & Co.), misbranded in that the therapeutic claims were held to be false and fraudulent. Milks' Emulsion (Milks' Emulsion Co.), misbranded in that it was falsely claimed to be of benefit in incipient consumption, bronchial asthma, pneumonia, etc. Bliss Native Herbs (Alonzo O. Bliss), misbranded in that the therapeutic claims were held to be false and fraudulent. Madame Dean Antiseptic Vaginal Suppositories (Martin Rudy), misbranded in that the therapeutic claims were held to be false and fraudulent. Halz Tablets (Ed. Price Chemical Co.), misbranded in that the curative claims were held to be false and fraudulent. D. D. D. Ordinary and D. D. D. Extra Strong (D. D. D. Co.), misbranded in that the curative claims were held unwarranted (Jour. A. M. A., Nov. 20, 1920, p. 1442).

Chlorlyptus Not Accepted for N. N. R.—Chlorlyptus (Weeks Chemical Co.) is a chlorinated eucalyptus oil containing 30 per cent of chlorine in relatively stable combination. It is claimed to be a new "chlorinated antiseptic," highly efficient as a wound antiseptic. It is proposed for use in local infections, burns and as an antiseptic in the alimentary and urinary tract. The laboratory investigation made in the A. M. A. Chemical Laboratory and by the referee of the Council on Pharmacy and Chemistry who was in charge of the product showed that Chlorlyptus is a feeble antiseptic, considerably weaker than eucalyptus oil. The chlorin contained in it is bound too firmly to have any action; in fact, the chlorination has merely weakened the eucalyptus oil. The clinical evidence submitted by the manufacturer did not demonstrate the value of Chlorlyptus. The Council on Pharmacy and Chemistry voted not to accept Chlorlyptus for New and Nonofficial Remedies because of the unfavorable results of the laboratory investigations, but with the agreement that the product will receive further consideration if more convincing clinical data become available (Jour. A. M. A., Nov. 27, 1920, p. 1512).

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B. R. TUCKER, M. D., Richmond, Va.
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Editorial

Friendship.

"A blessed thing it is for any man or woman to have a friend; one human soul whom we can trust utterly; who knows the best and the worst of us, and who loves us, in spite of our faults; who will speak the honest truth to us, while the world flatters us to our face, and laughs at us behind our back; who gives us counsel and reproof in the day of prosperity and self-conceit; but who, again, will comfort and encourage us in the day of difficulty and sorrow, when the world leaves us alone to fight our own battles as we can."—Charles Kingsley (Friendship in The Water of Life).

"What are Vitamines?"

This is a question asked repeatedly since the importance of these compounds in foods has come into prominence, but no definite answer has yet been given. Investigations by scientists at universities, agricultural experiment stations, and institutions for medical research have revealed much information regarding the function of vitamines in body maintenance and building, and the parts of the various foods in which they are to be found.

That vitamines are compounds absolutely essential in the food, in order to maintain the weight of the body and produce growth, has been definitely proved. The lack of vitamines causes deficiency diseases, so named because they are due to lack of something in the diet. Vitamines are present and are needed in such small quantities in the food that chemists have not yet been able to isolate them from the many other compounds which are in foods. For this reason, we know very little of the actual character of vitamines.

Three Types of Vitamines.

According to a statement by Dr. Carl O. Johns, in charge of nutrition work in the Bureau of Chemistry, U. S. Department of Agriculture, vitamines have been classified into three different types depending upon the functions which they have in promoting well-being and growth.

The first type is known as water-soluble vitamines, and these are necessary in order to obtain growth from food. Lack of these causes beri-beri, which manifests itself by disease of the nervous system and by other symptoms. These vitamines are found in seeds, in green plants, in certain bulbs and fleshy roots and fruits, and in milk and eggs, as well as in certain organs in the animal body. The seeds referred to include beans, nuts, and the various cereal grains. When cereals are very highly milled in order to obtain a very fine white flour, a large part of the vitamines may be removed. Vitamines are also lost when rice is polished in order to remove the outer layers which contain most of the vitamines. It is for this reason that a diet consisting mainly of polished rice may cause beri-beri, while unpolished rice does not cause this disease.

Fat-Soluble Vitamines.

The second type is known as fat-soluble vitamines, and these are found in butter, eggs, milk, and in certain animal organs such as the heart, kidneys, and liver, and to some extent in other fats as well as in green vegetables. They also exist in smaller quantities in certain weeds. When fat-soluble vitamines are absent from the diet animals and man are subject to a disease of the eyes, which appears to be related to xerophthalmia and which, if prolonged, may produce blindness.

The third type is known as antiscorbutic vitamines—that is, those which prevent scurvy, which manifests itself by disease of the bones as well as in other ways. These vitamines are found in oranges, grapefruit, lemons and other citrus fruits, and in green vegetables such as tomatoes, spinach, and lettuce, and in eggs and raw milk. The drying of vegetables frequently destroys the activity of the antiscorbutic vitamines. The best source of vitamines is in the leafy parts of vegetables, and this is one of the

reasons why spinach, lettuce, and cabbage are valuable foods.

"Dead Bodies for the Promotion of Science".

Attention of physicians in Virginia is called to the appeal of the Anatomical Board which appears on page 504 in this ournal. The promotion of the science of medicine and surgery depends, in its last analysis, upon that fundamental study: anatomy. No greater handicap can come to the interests of medical education than a condition of affairs in which there is an inadequate supply of bodies. The study of anatomy, we must remember, can not be carried on without bodies upon which to perform dissection for the purposes of demonstration and instruction.

We urge physicians of Virginia to assist the Anatomical Board in securing the needed bodies. Note the following from the communication of the Anatomical Board:

"'Attention is directed to sections of the present law as found in the Code of Virginia, Chapter LXXX, Regulating the Procuring and Distribution of Dead Bodies for the Promotion of Medical Science.

"'Sec. 1778.—Notification, and Delivery of Bodies.—All officers, agents and servants of every city in the State, and of every almshouse, prison, morgue, hospital, jail, or other public institution in such cities having charge or control of any dead body which is required to be buried at the public expense, and every officer or other person having charge or control of the body of any person upon whom the sentence of death for crime has been executed under the law, shall notify the said board, or such person or persons, as may, from time to time, be designated by the board or their duly authorized officer or agent, whenever and as soon as any such body comes to his or their possession, charge, or control; and shall, without fee or reward, deliver such body, and permit the said board and its agents, and such physicians and surgeons as may from time to time be designated by the board and shall have given the bond required by section 1781, to take and remove such body to be used for the advancement of medical science.

"'Sec. 1783. Penalty.—If any person fail or refuse to perform any duty imposed upon him by this chapter, he shall, for every such failure or refusal, be fined not less than one hundred nor more than five hundred dollars.'

"The present law enables the Anatomical Board to obtain a few bodies annually from the Penitentiary, and a few others in a hit or miss way from Richmond, Norfolk and Lynchburg. There is no reason why any city, county, or institution in the State should have to provide for the burial at public expense of any unclaimed body. The body may be shipped to the Anatomical Board, Richmond, Va., in a plain wooden box after the body has been wrapped in a cotton sheet saturated with 3% carbolic acid, and all expenses will be paid by the Anatomical Board."

The Nursing Situation.

The profession of nursing, it appears, is in serious danger of an acute shortage. If this shortage continues to grow and the young women, possessing training and aptitude for this useful calling, continue to turn to other fields of work, a serious and threatening danger will confront the medical profession; to say nothing of the lamentable misfortune to sick and suffering humanity. This condition of affairs results, no doubt, from a number of causes closely related to the recent world war and its activities. Many of these causes are, no doubt, undergoing changes of relative importance and will, in due course of events, no longer operate as deterring factors. But the fact remains that, so imperative and urgent is the present need for pupil-nurses in the hospitals of the country, the natural course events that operate in this field must be quickened and the attention of the medical profession drawn directly to the effort needed to start recruiting in the ranks of the nursing profession. Delay is no longer permissible. The physicians of the country should keep before themselves this need as they go about their work. Acceptable and suitable young women who come within the realm of their influence should be induced to look into the advisability of taking up the study of the profession of nursing. The profession of nursing, it should be remembered, offers a much wider field for work and greater opportunities for a life career than ever before in the history of the world. Probably no field of usefulness or work is opened to women presenting so wide a range of opportunity.

The Modern Hospital recently treated the general need for nurses in the following way: "The shortage of student nurses in training

schools has frequently been troublesome; it has in the history of nursing in this country often been a serious problem, but perhaps never before have the grave consequences of the danger been so outstandingly clear. Women who are daily turning away from this profession and going into work which promises less opportunity for service, gives less range for individual effort, and fewer openings for advancement, should have the advantages of nursing as a career pointed out to them. Publicity in this direction is as much a matter of public responsibility, since the resultant efforts are fundamental to the life of the ordinary community as of professional consideration.

"To solve this problem, then, a complete national organization with well formulated plans and definite purposes has been effected by an agreement for concerted action of the American Nurses' Association, the National Organization of Public Health Nursing, the National League of Nursing Education, and the American Red Cross. The latter has offered its nation-wide, highly decentralized organization for a nursing publicity campaign and co-ordination of local agencies. Information relating to nursing education and the facts concerning the opportunities open for graduates of the nursing profession are to form the substance of this campaign.

"That these facts may be put before individuals and communities in the most effectual way, Student Nurse Recruiting Committees are to be formed in communities consisting of representatives from the various groups concerned —from Red Cross chapters, hospital and training school superintendents, physicians, governing and auxiliary boards of hospitals, chambers of commerce, women's clubs, the local press and medical nursing organizations, and boards of education.

"The general lines of activity of these committees have been plotted. After ascertaining accurately the accredited schools in communities which would attract student nurse applicants, lists of which they can secure from the State Boards of Examiners, they will obtain almost exhaustive information on these schools and striking statistics setting forth the need for nurses. To present these facts to their communities, the Student Nurse Recruiting Committees will enlist the aid of every possible agency.

"The usual media of publicity will be employed. Motion pictures explaining the shortage and making the possibilities of the profession attractive will be shown; pageants and plays will be given; articles in newspapers will appear frequently, and posters will be placed in stores, schools and railway stations. Already a pamphlet has been prepared by the Department of Nursing of the American Red Cross called 'A Challenge to the Young Women of America.'

"Superintendents of training schools have an unusual chance of making use of the enthusiasm they can engender in their own schools by presenting the plan to their own students and enlisting their organizations for this purpose, likewise. For the maximum measure of accomplishment in this undertaking, it is essential that the movement be supported, too, by individual physicians, medical associations, and other diverse national organizations profiting by the service of nurses.

"Other agencies in the community interested in various welfare movements will be asked to co-operate—county medical societies, social service clubs or societies, religious organizations, farmers' associations or groups of teachers.

"In this way the Red Cross and the leaders in nursing education hope that the situation may be expeditiously met and the threatening large discrepancy between supply and demand in the nursing field reduced."

Tri-State Meeting.

The attention of our readers is called to the next annual meeting of the Tri-Sate Association of the Carolinas and Virginia, which meets in Spartanburg, S. C., February 16 and 17. From information that comes to us, this meeting promises to be an extremely interesting one. In addition to a rather large number of papers to be presented by medical men of the three states, there is to a group of papers contributed by men of national reputation.

There is every reason why this regional medical association, composed of doctors fro three states, so long associated in many ways in the political history of the country, should flourish and serve a most useful purpose in the advancement and growth of medical knowledge among the medical men of this territory as well as promote a fraternal feeling and goodwill which will give strength and power to the profession. This group of states, territorially,

commercially, financially and socially, is inherently, through the growth of years, a regional section of the country and in no field of effort may the interests of the people of these states be more greatly served and advanced than in the added strength, power, and scientific atainments of the medical profession of this section.

Let Virginians do a telling part in promoting this friendship and scientific interest by attending and contributing to the meeting in Spartanburg, next month.

News Notes

We wish each of our readers a happy and prosperous year.

The State Public Health Workers

Held their annual conference in this city, from December 28th to January 1st, inclusive, Dr. E. G. Williams, State Health Commissioner, presiding. More than a hundred health workers from all parts of Virginia and officials from Washington were in attendance. Sir Arthur Newsholme, probably the best-known English health worker in the world, at present lecturer on public health administration in the School of Hygiene and Public Health at Johns Hopkins University, was among the prominent speakers from out of the State. Dr. Hugh S. Cumming, a Virginian, and now Surgeon General of the U. S. Public Health Service, was in attendance and, at the banquet tendered the visitors on the evening of the 29th, stated that Virginia ranked with the best in the efficiency of its health organization, and paid a high tribute to the work done by Dr. Williams for the past twelve years. Drs. L. L. Lumsden and Charles Wardell Stiles, both of whom have done notable work in the U. S. Public Health Service, were also among the speakers.

Many and varied subjects pertaining to health administration were discussed, including the relation of public health to sanitation, publicity, nursing, the American Red Cross, social work, child welfare, dental clinics, rural public health work, county health work, and social hygiene.

Virginia Society of Oto-Laryngology and Ophthalmology.

At the recent meeting of the Medical Society of Virginia, a number of eye, ear and throat specialists, realizing the need of an active organization in the State for the scientific study of the problems of ophthalmology and oto-laryngology, formally organized the above named Society. The following officers were elected for the first year: Dr. Hunter H. McGuire, Winchester, president; Dr. Wm. F. Mercer, Richmond, vice-president, and Dr. C. S. Dodd, Petersburg, secretary-treasurer.

The first meeting of the Society will be held at the Jefferson Hotel, Richmond, on February 3, 1921. In addition to a number of papers which will be presented by members of the Society throughout the State, there will be a symposium on Simple Glaucoma. Several invited guests of national reputation have been asked to deliver addresses on the various phases of ophthalmology and oto-laryngology and have indicated their intention of being present. The local committee of arrangements is composed of Dr. William F. Mercer, chairman, and Drs. Jos. A. White, John Dunn, Karl Blackwell and W. L. Mason.

The new Society will probably meet semi-annually. It will in no way conflict with the Medical Society of Virginia. Its members will continue to present papers of practical interest before the State Society just as has been the custom in the past.

Tri-State Medical Association of the Carolinas and Virginia.

Dr. James K. Hall, Richmond, secretary-treasurer of the Association, informs us that the program for the Spartanburg, S. C., meeting will be mailed within a few days. The Association will convene early on the 16th of February for a two days' session, with headquarters at Hotel Cleveland. Accommodations may also be had at the Finch Hotel and Gresham Hotel, but reservaions should be made for both room and Pullman accommodations promptly as Southern travel is always heavy at this Season. The secretary states that about fifty papers will be presented, excellent in scope and quality. Among the invited guests will be Surgeon General Hugh S. Cumming, of the U. S. Public Health Service: Dr. Llewellys F. Barker, of Johns Hopkins Hospital; and Dr. William A. White, superintendent of St. Elizabeths Hospital (Government Hospital for Insane), Washington.

The local committee of arrangements is composed of Dr. Baxter Haynes, chairman, and Drs. S. T. D. Lancaster, H. R. Black, G. D. Wilson and D. L. Smith. The wives of the members of the Association are invited to attend and their comfort and pleasure will be looked after by a committee of the following ladies: Mrs. W. B. Lyles, chairman, and Mesdames D. L. Smith, Baxter Haynes, J. R. Sparkman, J. E. Edwards, and Saml. Orr Black.

The Spartanburg County Medical Society and the Chamber of Commerce of that city extend a most cordial invitation to the members to attend the meeting and to enjoy Spartanburg's hospitality. An entertainment will be given at the S. C. School for the Deaf and Blind at Cedar Spring (a suburb of Spartanburg), under the superintendency of Dr. Newton F.Walker. A buffet supper and luncheon will also be tendered the members by Dr. H. R. Black, at his home, on the night of the 16th.

The Spartanburg meeting promises much of interest and pleasure and those who fail to attend will regret it.

Sex Education and Venereal Disease.

Does sex education begin too late to be of real service in safeguarding young people against venereal disease is the question raised in a recent report issued by the U. S. Public Health Service. The authors of the article are careful to explain that the statistics available as to the ages at which the disease is most often contracted are as yet too scanty to do more than suggest the question and cannot answer it.

These statistics, so far as they go, however, suggest that children, especially those of the class which is ordinarily considered most likely to be infected, leave school long before the age at which sex education in regard to the twin diseases is commonly given. The earliest incidence as shown by these records appears in men at the age of 15 and shoots swiftly upward at 16, reaching maxima at 19 and 23. After 23 it drops as rapidly as it rose. Attention is called to the apparent significance of the fact that the ages between 16 to 23 are those between the most usual ending of school and the beginning of married life. For the women the incidence of the diseases ranges about two years earlier than in men.

The Public Health Service is now engaged in assembling and tabulating a very much larger number of cases that will probably give much more definite results.

Virginia's Vital Statistics.

In 1919 there was a decrease of 1569 in the number of births in Virginia as compared with 1918, the reduction being mainly for white children. Virginia leads the States in its plural birth rate and also in illegitimacy. There were reported to the Bureau during the same year, 31,613 deaths which, in spite of 4,525 deaths from influenza, gave a rate of 13.85 per 1,000 population, or the lowest since the establishment of the Bureau. There were 50,904 persons married, or an increase of 5,630 over 1918. The divorce rate also increased, there being recorded one divorce for every 7.76 marriages. Alexandria City and Arlington County had the highest marriage and divorce rates, which fact is attributable to the number of Washington people coming there.

The Bureau of Vital Statistics, with the idea of directing attention to some essential facts of preventive medicine and public morals, and to arouse a desire for further information, has issued a pamphlet entitled "The New Family". This is being mailed to wives whose marriages have recently been reported to the Bureau and may be had upon request as long as they last. It was prepared by a physician of experience in general practice.

Care of the Tuberculous.

From the annual report of the State Health Commissioner we note that, notwithstanding the opening of Blue Ridge, the State's newest sanatorium, at Charlottesville, the call on Catawba has been the greatest in its history. More patients were admitted to Catawba this year than ever before; and there was an unusually large waiting list when the report was compiled. The Piedmont Sanatorium for colored people has also worked to capacity. Instead of there being an unusually heavy death rate from tuberculosis, there were decidedly less fatalities this year than during any preceding twelve months. These establishments were begun primarily for the purpose of teaching consumptives how to care for themselves—as educational rather than cura-

tive establishments—and, for this reason, often have to refuse advanced cases. It is never possible to say that any case is absolutely hopeless, but anybody having this disease in an advanced stage can hardly hope to be permanently benefited from the comparatively brief stay permitted at the sanatoria; so, with consideration of the greatest good for the greatest number, the sanatoria take those cases which are arrestible and make the discharged patients propagandists for the right methods of treatment.

Fire Destroys One of University of Virginia Buildings.

Early on the morning of December 24th, fire practically gutted the brick building which housed the physiological and pharmacological laboratories of the University of Virginia Medical School. The flames were checked just before they reached the offices of Dr. Theodore Hough, the dean of the medical school. The burned building was one of the original structures designed by Thomas Jefferson. Estimated damage to the building was $20,000 and to apparatus $5,000.

Would Lease Hospital for Ex-Soldiers.

According to the Associated Press, the House Committee on Public Buildings and Grounds has reported favorably the bill authorizing the government to lease a proposed $3,000,000 hospital to be erected in New York State, the government to pay an annual rental of 10 per cent. on the cost of construction. This is to accommodate 10,000 disabled ex-soldiers, who, it is stated, have not been receiving proper housing and treatment in some of the State hospitals and poorhouses. It was further stated that some States had been profiteering in their charges for the care of these ex-soldiers.

Dr. and Mrs. R. M. Hoffman

And children, of Summerlee, W. Va., spent the holidays with relatives in Woodstock, Va.

Dr. W. Armistead Gills, U. S. N.,

Formerly of this city, has been detached from the U. S. Naval Training Station, Newport, R. I., and has left for the U. S. Naval Station at Guam. He is accompanied by his wife, and sailed from San Francisco on January 5th.

Martinsville to Have Another Hospital.

Mrs. E. P. Hairston, who about a couple of years ago gave Martinsville, Va., a hospital, which shortly thereafter was destroyed by fire, has donated to the town a large tract consisting of several acres as a site for a new hospital, which it is proposed to build as soon as building material and costs come down. The new site has been accepted and the old one will revert to the donor.

Dr. and Mrs. R. H. Wooling,

Pulaski, Va., were recently called to Fluvanna County, Va., on account of the death of the doctor's brother-in-law.

Dr. Meade S. Brent,

Of the Central State Hospital, Petersburg, Va., spent the holiday season with relatives in Heathsville, Va.

Skulls of Prison Inmates to be X-Rayed.

The Michigan State Penitentiary has purchased an X-ray machine with which they intend to photograph the skulls of inmates, to determine if surgical operations might cure patients of criminal tendencies. If any part of the skull is found to be pressing on the brain, an operation will be performed to relieve this pressure; if this is successful, the judge who tried the case will be asked to bring about the prisoner's release.

Dr. Robert Whitehead,

Of Meherrin, Va., was a recent visitor at his old home in Amherst, Va.

Dr. and Mrs. A. R. Shands

And sons, of Washington, D. C., spent part of the holiday season with friends in Prince George County, this State.

Maternity Aid Bill Passed in Senate.

After material amendment, the U. S. Senate, about the middle of December, passed the Sheppard-Towner bill for the protection of maternity and infancy and providing for cooperation between Federal and State governments. As passed, the bill carries an appropriation of $480,000 and an authorization for a further expenditure of $1,000,000. The $480,000 is to be distributed on a basis of $10,000 to each State. It is believed that the House will likewise act on this bill at this session.

The need for the passage of this bill is apparent, when we recall the mortality rate in the first year of life in the United States is 100 per 1,000 births, as compared with a rate of 50 per 1,000 births in New Zealand.

Dr. T. B. Latane

Has returned to his home at Stevensville, Va., much improved in health, after a stay of some length in Richmond.

Hospital To Be Rebuilt.

Hardly had the ashes cooled after the Clarence Barker Memorial Hospital, of Biltmore, N. C., was partly destroyed by fire, early on January 2d, before the directors had started plans which will possibly terminate in the erection of a new hospital to cost $250,000. All patients were removed unhurt to other hospitals. This hospital was erected in 1899 by the late George W. Vanderbilt as a memorial to his cousin, Clarence Barker.

Two Wards At Walter Reed Hospital Destroyed By Fire.

As a result of one of the patients in a ward at the Walter Reed General Hospital, Washington, setting fire to his bed, two of the wards were destroyed on December 12th, and the patient was burned to death. About seventy other soldiers of the late war, who were slowly recovering from shell shock and nervous troubles, were rescued from the burning buildings, but this experience will mean a setback for most of them. Several of the surgeons, nurses and orderlies were painfully but not severely burned while engaged in the work of rescue.

Fined for Practicing Without Doctor's Certificate.

Mrs. L. M. Kenniston, of this city, was, on December 21st, fined $50 in police court and given thirty days in jail, on the charge of selling medicine without a license and practicing without a doctor's certificate. She was practicing what is known as "Viavi" treatment.

Married—

Captain Henry W. Kennard, M. C., U. S. A., of Baltimore, and Miss Elsie Wilson Hunter, Richmond, December 11th. After an extended trip on the Pacific coast, Captain and Mrs. Kennard will go to Camp Lewis, Wash., where he will be stationed.

Nurses' Club Formed.

A Nurses' Club has been formed at Stuart Circle Hospital, this city, under the sponsorship of the South Atlantic Field Y. W. C. A. This is intended to prove an addition to the recreational side of the nurse's life. This club, with an initial membership of thirty-five, is the first to be formed in the South Atlantic field.

Dr. H. Frank Givens,

Formerly of Southwest Virginia, has been living in West Bend, Iowa, for sometime.

Dr. H. H. Jones,

Formerly of Doe Hill, Va., has retired from active practice and is located at Dunmore, W. Va.

Dr. S. E. Massey,

Who made his home at Bramwell, W. Va., for sometime, is now located at Martinsville, Va.

Dr. Sydney E. Bray,

An alumnus of the Medical College of Virginia and formerly of this State, visited relatives in West Point, Va., early this month, on his return to resume his practice in Savannah, Ga. Dr. Bray had just completed a two months' post-graduate course in dermatology at Columbia University, College of Physicians and Surgeons.

Dr. B. L. Taliaferro,

Resident physician of Catawba Sanatorium, Va., has returned to his duties, following a rest of several weeks at Saranac Lake, N. Y.

Dr. Hunter H. McGuire,

Of Winchester, Va., was unanimously awarded the certificate of the American Board for Ophthalmic Examinations at its recent meeting held in Kansas City.

Given Leave of Absence.

Dr. Hugh C. Henry, first assistant physician at the Central State Hospital, Petersburg, has been granted leave of absence to inspect State institutions for insane, epileptics and feeble-minded in Pennsylvania, New Jersey, Maryland, the District of Columbia and else-

where, to secure information as to the latest methods of hospital administration and treatment of the insane, defective and delinquent classes.

Dr. A. G. Franklin,

Who entered the medical reserve corps of the army from Richmond, has received his appointment as major in the regular army medical corps. He is now on duty at station hospital, Camp Jackson, S. C., as chief of the medical service.

Baptists to Have Hospital in Florida.

In a report made to the Florida Baptist Conference, in recent session, Gainesville was recommended as the site for the first unit of a three-unit million dollar Baptist hospital to be located in Florida.

Dr. Robert L. Powell,

Of Belmont, Va., was best man at the Powell-McCormick wedding in Harrisburg, Pa., the last of December.

Memorial Services to Former Surgeon-General Gorgas.

A memorial service, under the auspices of the Southern Society of Washington, D. C., will be held in the Hall of the Americas of the Pan-American Union, on Sunday, January 16th, in memory of the late Major General William C. Gorgas, formerly surgeon-general of the United States Army. The speakers will include representatives from the United States, England, Cuba, Panama and South American countries.

Dr. William R. Weisiger,

Who spent the Christmas holidays with his sister, Mrs. W. C. Cottrell, in this city, has returned to New York. Dr. Weisiger formerly practiced here but has been in New York for the past eighteen months specializing in diseases of the eye, ear, nose and throat at the Manhattan Eye, Ear and Throat Hospital, where he is now House Surgeon on the Eye Service. Dr Weisiger expects to remain in New York two years longer, after which he will retnrn to Richmond to practice.

Dr. George T. Klipstein,

Who has been in California for several months, recuperating after an illness, expects to return to his home in Alexandria, Va., in the spring, and resume his work.

Correction in Name of Society.

In our December issue, we noted the organization of the "Shenandoah Valley Medical Association", composed of doctors from the counties of Augusta, Rockbridge, Bath, Rockingham, Shenandoah, Frederick and Page. The name of Shenandoah Valley was used for this Society in the announcement as sent us, but we are informed by the President, Dr. M. J. Payne, that it is known as the "Valley Medical Association."

Equalization of Rates at T. B. Sanatoria.

At the annual meeting of the State Board of Health, December 14, an equalization of rates at the State Tuberculosis Sanatoria was decided upon. The rate as fixed for the Catawba and Blue Ridge Sanatoria for white people is $1 a day, while the rate at Piedmont Sanatorium for colored consumptives is to be fifty cents a day.

Chiropractor Fined.

Apropos to the Correspondence in our December issue on "Should Chiropractors be Admitted to Practice in Virginia without Certificate?", Dr. Preston, secretary of the State Board of Medical Examiners, informs us that John H. Stokes, reference to whose conviction in Police Court was made in his letter, was convicted in the Corporation Court and fined $125 and that he has made an appeal to the Supreme Court. Also, the trial of Bristow and Bristow, chiropractors, who were fined in the Police Court, is set for the February term of the Corporation Court.

We note that in California there have recently been several chiropractors who have been convicted of practicing illegally, and fine was imposed in each case.

Represent United States.

Dr. J. H. White, assistant surgeon-general, and Surgeon G. N. Guiteras were designated by Surgeon-General Cumming to represent the United States at the Sixth Internatonal

Sanitary Conference, to be held in Montevideo, Uruguay, December 19 and 20. The surgeons were to explain what this country has done in the past nine years in the development and enactment of sanitary measures.

Dr. John Joseph Kindred,

University of Virginia, '89, was recently elected to the United States Congress from the Second District, New York, which includes Queens Borough, New York City. He represented this district in the House of Representatives ten years ago and worked hard then, as he expects to do in the coming Congress, for the benefit of the medical profession and to promote favorable legislation and appropriations in the interests of the public health and medical science.

Dr. Kindred is the owner of the well-known River Crest Sanitarium for nervous and mental diseases at Astoria, Queens Borough, New York City. He is a native of Southampton County, Virginia, having gone to New York about thirty years ago.

Women in Public Health Work.

The first meeting of the American Association of Women in Public Health, organized to afford women who make public health their profession an opportunity to study together the problems of their work, was held in Washington late in November. Eligible to membership in the Association are several hundred women, of whom about forty are attached to the U. S. Public Health Service. Others include State health officers, child hygiene directors, laboratory workers, publicity directors, public health nurses, and social service administrators.

Dr. Loren E. Cockrell,

Reedville, Va., has resigned as a member of the Northumberland County School Board.

New T. B. Hospital for Danville.

The Hilltop Anti-Tuberculosis Hospital of Danville, Va., is to have a new home about two and a half miles from the city. It is announced that arrangements have been completed for the erection of a $50,000 plant on the new site.

Dr. R. M. Shelton

Announces that his postoffice is now Whittle's Station, Va. It was formerly Keeling, Va.

Dr. Ashton Harwood,

Formerly of Binns Hall, Va., is located in Lynchburg, Va., at 249 Norfolk Avenue.

Dr. E. A. de Bordenave,

Of Franklin, Va., was among those who attended the banquet given in Norfolk, Va., early this month, in honor of President-Elect Harding.

The Fourth District (N. C.) Medical Society,

At its annual meeting, elected Dr. Jas. C. Grady, Kenly, president; Dr. Edmund C. Boice, Rocky Mount, vice-president; Dr. Chas. A. Woodard, Wilson, secretary; and Dr. Byrd C. Willis, Rocky Mount, treasurer. Drs. Boice and Willis are both formerly of Richmond.

Child Welfare Congress.

The second International Child Welfare Congress will convene in Brussels, July 18, 1921, for a four days' session. The first of these congresses was held in 1913.

Dr. George M. Niles,

Atlanta ,Ga., was elected president of the Southern Gastro-Enterological Association, at its meeting held recently in Louisville, Ky.

Oregon and California Still to Require Vaccination.

The Anti-Vaccination Bill recently voted on in Oregon was defeated by a large majority, the vote being 2 to 1 in favor of vaccination.

In California the people likewise defeated the proposed amendments for anti-vaccination and anti-vivisection.

Dr. Fred C. Downey,

Edinburg, Va., has been elected a member of the board of directors of the Shenandoah County (Va.) Fair Association.

Dr. W. A. Shepherd,

Of this city, last month enjoyed a hunting trip with friends in Caroline County, Va.

Dr. and Robert C. Bryan

And family, of this city, spent the holiday season with relatives in Maryland.

Dr. H. A. Spitler,

Of Middleburg, Va., was a recent visitor in Washington, D. C.

Dr. Hugh Hagan,

Roanoke, Va., was a recent visitor in Lynchburg, Va., on which occasion he was best man at the Allen-Glass wedding.

D. L. J. Whitehead

Has returned to his home in this city after a short visit to relatives in North Carolina.

Venereal Disease Incidence At Different Ages.

The Statistical Office of the U. S. Public Health Service has undertaken the tabulation and analysis of case reports of venereal diseases in several states with a view to finding out the venereal disease incidence at different ages and other facts which may be of value in the campaign against these diseases. While the data gathered cannot be considered conclusive, the following are some conclusions reached from a study of approximately 8,400 cases of venereal diseases among white persons in Indiana.

(a) The greatest incidence of venereal infections in males and females is between the ages of 17 and 25.

(b) The incidence of these infections is earlier in females than in males.

(c) From data obtainable, it is highly probable that venereal infections are largely premarital among males and postmarital among females.

(d) Marriage apparently has the effect of lessening venereal infections among males.

(e) Gonorrhea seems to appear at slightly younger ages than either syphilis or chancroid in both males and females.

A. M. A. Midwinter Conference.

The American Medical Association will have its midwinter conference in Chicago, at Congress Hotel, March 7 to 10, inclusive. The Congress on Medical Education and Licensure will occupy the first three days and the Conference on Health and Public Instruction will be held on the 10th.

Deaths of Physicians in 1920.

We note from the Journal of the American Medical Association that during the year 1920 there were recorded in its pages the deaths of 2,321 physicians in the United States and Canada. Including possible omissions, etc., and with an estimated 160,000 physicians in the States and Canada, the death rate would be 14.81 per 1,000. The greatest number of deaths occurred at 63 and 64 years, there being 65 deaths reported at each age.

Southern Section, American L. R. & O. Society.

The Southern Section of the American Laryngological, Rhinological and Otological Society will hold its annual meeting in Asheville, N. C., January 29. Dr. Jos. B. Greene, of that city, is chairman of the section.

Income Tax.

Do not overlook your income tax returns which have to be filed with the collector of Internal Revenue of your District on or before March 15, 1921, at which time you may pay the tax in full or the first of four installments of the tax.

If it hits you hard, just think of what it might have been had the war lasted longer.

Care Of Crippled Children.

The Dooley Hospital, Richmond, for the care of crippled children, white or colored, is now in full operation. Dr. William T. Graham has been in charge since its inception as an unpaid chief. The corps of nurses is in charge of a graduate from the Children's Hospital of Boston and a graduate of the Sargent School of Physical Education does the corrective and massage work. An appropriation of $10,000 was made by the General Assembly for this work last year, and it is hoped that this will be increased by the next legislature.

Consumptives Should Not Migrate.

The migration to the semi-arid West of army patients suffering with tuberculosis is causing the U. S. Public Health Service no little concern, for all the Service hospitals and all the contract hospitals in that region are now completely filled. Patients should not leave places where the Government is ready and able to care for them and go to other sections where it is absolutely impossible for it to provide proper care and where even ordinary housing accommodations are largely unobtainable. The Service is making and will continue to make strenuous efforts to meet the needs of the patients, but the great amount of travel to that part of the country makes the problem very serious.

Monograph Issued By The National Anesthesia Research Society.

The National Anesthesia Research Society has just issued a Monograph entitled "Nitrous Oxide-Oxygen Analgesia and Anesthesia in Normal Labor and Operative Obstetrics." It was edited by Dr. F. H. McMechan with the aid of a Publication Committee, composed of men of national reputation in this special line, and is for the benefit of all those concerned in safer and more efficient obstetrics and anesthesia. It has an excellent Table of Contents and is "up to the minute" in what it has to say on this subject.

Return From Hunting Trip.

Drs. Edward and Stuart McGuire have returned to their homes in this city after enjoying a hunting trip on the Eastern Shore of Virginia.

Dr. W. L. Gatewood,

Of New York City, spent the holidays with his parents at Toano, Va.

Openings for Dietitians.

Opportunities are now open in the hospitals of the U. S. Public Health Service for the employment as dietitians of many women graduates of schools of household economics who have had student training or hospital experience in civilian or army hospitals. The work, which has to do with the victualing of the hospitals, was transferred a year ago from the pharmacists to a newly established dietitian service. The section has steadily expanded but, owing to the opening of many new hospitals and the enlargement of those already in operation, the dietetic personnel is as yet not nearly up to the requirements. Applications for appointment should be made to the Surgeon General, U. S. Public Health Service, Washington, D. C.

Practice,

Paying $4,000 in 1919 and about same in 1920 free to physician buying my seven-room dwelling house, equipped with water and electric lights, five lots, good barn, and garage, in O. K. town of about 500 population. One other physician. Big back country. Rates good. Reason for selling—wish to retire from practice. Price for property, $5,000; terms favorable. Address "J. S.," care this Journal.

Obituary Record

Dr. Peyton B. Green,

One of the most prominent physicians of southwest Virginia, died suddenly December 21, of apoplexy, in his home in Wytheville, Va. He was born in Staunton, Va., 59 years ago but received his early education in Roanoke County. Later he studied medicine at the University of Virginia, from which he graduated in 1885. He joined the Medical Society of Virginia, the same year and attended many of its sessions. He was chairman of the section on Chemistry in the Medical Examining Board of Virginia until November, 1894, and was at one time city physician of Wytheville. He is survived by a daughter and a sister.

Dr. Charles A. Labenberg,

A widely known citizen and popular physician of Richmond, died suddenly at his home in this city, December 16, death being due to high blood pressure. He was 44 years of age and an alumnus of the former University College of Medicine, Richmond, from which he graduated in 1896 with highest honors. He was appointed interne at the City Hospital, and, upon completion of his service there, entered private practice. In addition to his work in the professional and business world, Dr. Labenberg was one of the leading members of Beth Ahabah Temple and was identified with numerous fraternal organizations. He was also a member of several medical associations, including the Medical Society of Virginia. His wife, four daughters and a large family connection survive him.

Resolutions on Death of Dr. Labenberg.

Resolutions adopted at a meeting held December 17, 1920.

The Richmond Academy of Medicine and Surgery is again called upon, within a few weeks, to mourn the death of one of its Fellows.

Dr. Charles A. Labenberg was stricken suddenly in the early morning of December 16, 1920, yielding his life within a few moments. The expressions of regret and sympathy heard from every one who knew him attest the esteem and affection in which he was held.

Dr. Labenberg, by sheer will and ability, raised himself from an humble beginning to a foremost position in the medical profession of this city, creating

a large practice and making friends and admirers of his patients, and gaining the respect and good-will and friendship of his colleagues.

Be It Therefore,

Resolved, That in the death of Charles A. Labenberg, the Academy has lost a valued member.

Resolved, That the Academy extend to his wife and children its sincerest sympathy for the loss of their beloved, taken away while in the prime of life and height of usefulness. And Further Be It

Resolved, That these resolutions be spread upon the minutes of the Academy; that a copy be sent his family; and that they be published in the Virginia Medical Monthly.

(Signed),

Mark W. Peyser,
H. Ward Randolph,
Wm. S. Gordon,
Committee.

Resolutions on Death of Dr. Hoge.

Resolutions adopted at a meeting of the Richmond Academy of Medicine and Surgery, held December 14, 1920.

Moses Drury Hoge, Jr., was born in Richmond, Va., February 2, 1861, and died in his residence in this city on November 24, 1920. He was the son and namesake of the eminent Presbyterian minister, Rev. Moses D. Hoge, D. D., of Richmond. He secured his academic education at Hampden-Sidney College and the University of Virginia; graduated in medicine at the University of Heidelberg in 1886; passed the Medical Examining Board of Virginia the same year; became very soon thereafter a Fellow of the Richmond Academy of Medicine and Surgery and a member of the Medical Society of Virginia, remaining a loyal and consistent member of these societies until his death. He was President of the Richmond Academy of Medicine and Surgery for one term. Dr. Hoge was one of the founders of the University College of Medicine, Richmond, and professor of Histology, Pathology and Urinology therein. He was author of books on "Diagnostic Urinalysis" (1896), and "Outlines of Histology" (1897).

He successfully practiced his profession in this city up to one year ago, enjoying the confidence and respect of a large clientele. In addition to a large family and general practice, he did considerable work in his laboratory in the field of urology and diseases of the kidneys. These subjects elicited his greatest enthusiasm, and probably his best scientific work was done in them. He was consulted by a large number of persons in Richmond, and in this and neighboring States, because of his special work in Bright's disease.

The personal characteristics of Dr. Hoge were distinctive. He was a man of pronounced views, although very retiring and reluctant in announcing them. He was direct and candid, never indulging in unnecessary words or circumlocution. He was warm-hearted and drew friends to him and held them in lasting bonds of affection. His last will, bequeathing gifts to certain close and lifelong friends, symbolized the spirit of the man. Upon those whom he esteemed as friends he bestowed complete confidence and received from them loyal and abiding affection. Sincerity seemed to be most characteristic.

Outside of his large practice among the sick of the city, Dr. Hoge rendered public service to this community in the fields of public health, public school education, serving upon the Board of Health for years, and, more recently, upon the City School Board. The teachers in the public schools and his associates upon the board willingly testify to his unselfish and faithful service in this field.

As a teacher in medicine, Dr. Hoge will be remembered, and his memory will be cherished by his old students who are now to be found throughout Virginia and the South. These students will recall with pleasure and satisfaction the courses of lectures under him. He was careful in the preparation of these lectures; he required much of his students, but he gave much in return. He grounded them in the essentials and avoided the debated and superficial. Now that death has come to him—

Be It Resolved by his Fellows of the Richmond Academy of Medicine and Surgery,

First, that in his death the medical profession of Richmond has lost a respected, faithful and successful practitioner.

Second, that the Academy of Medicine and Surgery has lost a loyal member who will be remembered as a distinguished fellow-worker.

Third, that the sympathy of this body be conveyed through this preamble and these resolutions to his beloved wife and dear children who feel his loss so deeply.

Fourth, that a copy of these resolutions be published in the Virginia Medical Monthly and that they be spread upon the pages of the minute book of the Richmond Academy of Medicine and Surgery.

(Signed),

Alex. G. Brown, Jr.,
E. H. Terrell,
Virginius Harrison,
Committee.

Dr. Edwin Lee Morgan,

A prominent physician of Washington, D. C., died at his home in that city, November 23, at the age of 65 years. He studied medicine at the Medical College of Virginia, from which he graduated in 1879. Dr. Morgan was consulting physician to St. Ann's Orphan and Infant Asylum and was a prominent member of the Medical Society of the District of Columbia.

Dr. William F. M. Sowers,

A well-known surgeon of Washington, D. C., died in his home in that city, December 19, at the age of 46 years. He was a graduate in medicine from Johns Hopkins University in 1900. Dr. Sowers was a fellow of the American College of Surgeons and a member of the American Medical Association. He was also connected with the surgical staff of several Washington hospitals.

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Original Communications

CONSERVATIVE APPLICATION OF RADIUM IN BENIGN CONDITIONS OF THE UTERUS.*

By R. L. PAYNE, M. D., F. A. C. S., Norfolk, Va.

After fifteen years of applying surgical methods to the treatment of the benign conditions of the uterus, it is needless to say that the writer approached the cure of these conditions by radium in the most conservative attitude, but the results of treatment have been so satisfactory and have proven so much better than we expected that I now believe the time is ripe for a report on this work.

Under the heading of benign conditions are those cases of menorrhagia in young women; secondly, those suffering from profuse uterine hemorrhage produced by small myomata; thirdly, the so-called myopathic hemorrhage of benign origin arising from muscular or vascular disturbance in the uteri of older women, and last but not least, the profuse leucorrheal discharges dependent upon hypertrophic polypoid endometritis and particularly the discharges due to an uncomplicated endocervicitis which in itself is so often the cause of sterility. After witnessing the complete relief from hemorrhage in every single benign case treated with radium, which formerly would have been subjected to a hysterectomy, and after observing the astounding improvement in those hopeless inoperable cases of carcinoma, it is hard for one to fight down the optimism which will invariably creep upon us and, for that reason, we have devoted a considerable time to our records in these radium cases and have kept a most accurate trace of our patients with results that what we present we know to be facts and not hearsay.

In presenting a remedy for the relief of symptoms and cure of cases of chronic metritis and small myomata, certain conditions must be fulfilled if it is deserving as a worthy competitor for surgery. Briefly stated, the remedy must be, at the least, a cure; must be attended by small risk or, at least, be less hazardous than a well executed operation, and must be unattended by immediate or remote complication. Furthermore, the cure must be a permanent one.

In the surgical treatment of myomata, we have a long series of excellent results from the operative treatment of these conditions and it was indeed with a spirit of great conservatism, even of skepticism, that we began the application of radium to these patients. The most difficult problem to handle is the young women with menorrhagia in whom we do not wish to do any harm by the use of radium, for it is recognized that radium is capable of producing a great deal of harm if used indiscriminately or in doses too large for the particular case to which it is applied. Radium has a selective action on the graafian follicle, completely destroying this organ when used in an overdose, is quite as potent in its power to bring on premature menopause, and is quite as upsetting to the nervous equilibrium of a young woman as the removal of the ovaries; therefore, we only use radium in very light dosage in the treatment of young women in whom a tumor is not palpable but who is suffering from a depleted flow at the period. Using small doses we are able to decrease the flow as a rule to within normal limit, but in our early experience occasionally a permanent amenorrhea was produced. In fact, some indiscriminate operators with radium have utilized the destructive action of the agent on the graafian follicle and ovary to bring about a condition of sterility or to further the end of some women against the possibility of conception. It is needless to say that this should never be done and radium should never be applied in young women in large doses, except in especially well indicated conditions which I, for one, have never observed.

I would hardly be overstepping the bounds

* Read by title before the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920

of truth when I say that radium in proper dosage is capable of stopping almost any and every sort of discharge which comes from the uterus; therefore, when we refer to hemorrhage and treatment of myoma with radium, we are speaking more particularly of the symptoms produced by the myoma, namely hemorrhage, than we are of the expectations to reduce the size of the myomatous growth. On the other hand, radium has a very definite selective action on the unstriped muscle fibre and the fibro-elastic tissue so commonly found in myomata. In a general myopathic enlargement of the uterus, in small myoma, in submucous fibroids, in polypoid endometritis, radium is especially applicable, for it is in these conditions that the symptom of hemorrhage is most distressing and usually the only one giving any trouble. Our results from radium in these types of cases have shown 100% cure, whereas in large tumors we have had a relief from the symptom of bleeding and discharge but in many instances very little influence has been observed on the tumor itself.

In small myopathies, radium is a distinctive competitor of hysterectomy and in our hands has displaced hysterectomy, but where the tumors are large and there is definite pressure upon the other organs with embarrassment of function, we do not believe that surgery should be discarded. Another justification for surgery in the presence of these large tumors is the frequency of accompanying inflammatory lesions and the difficulty of diagnosis dependent upon the size of the tumors. Radium, therefore, may be used primarily to stop the hemorrhage and permit the recovery of the patient to a more or less normal state, but we would best conserve the professional end in the case if we always advised abdominal operation in large tumors; thus a survey of the pathalogical field is possible and the removal of such tissues as are necessary to restore the patient to health. Furthermore, in a single subserous myoma in a young woman, I believe the operation of myomectomy is clearly indicated for this would first conserve the ovary, and secondly, restore the uterus to a normal condition after which pregnancy might be possible.

In those cases of myoma associated with inflammatory conditions of the tubes and ovaries, we have learned that treatment by radium will produce an acute flare up of the inflammatory condition and therefore, we never use radium where there is any inflammatory complication present. Since it is known that radium will relieve almost invariably nearly every case of bleeding from the uterus, we have found many men bringing cases to us who feel that radium is indicated simply because the primary symptom, showing the pathology in the pelvis, is that of hemorrhage. For that reason it might be well for me to emphasize or summarize those conditions of benign character in which we do not apply radium in gynecology: First, when tumors are larger than a three to five months' pregnant uterus; secondly, in young women with single myomata, subserous, which may be removed by myomectomy; thirdly, those cases in which there is a definite chronic inflammatory complication with the myoma. Conversely, we always use radium in *small doses* in young women with excessive menses incident to myopathic changes in the uterus, in excessive functional activity of the ovaries associated with small myomata, in submucous fibroids, in polypoid endometritis, and particularly in the treatment of leucorrhea should small doses of radium be exhibited. Hypertrophic endometritis, accompanied by excessive leucorrheal discharge, has been followed by excellent results in every case after the use of small doses of radium, but the type of leucorrheal discharge due to an endocervicitis following chronic infection of the glands is a more important condition to treat with radium for it is this condition which so often underlies sterility in young women. Small doses of radium applied to the cervical canal as high as the internal os will generally relieve this type of leucorrheal discharge and produce a more or less healthy condition of the cervical canal. We have had one case of pregnancy to occur in a woman married five years without children and Curtis has reported two cases of the same type in which sterility was relieved by small doses of radium to the cervix.

We use radium in *larger doses* in women over forty years of age suffering with myopathic hemorrhage or menorrhagia from myoma. In such cases we expect to bring on a menopause and are practically certain in all cases of not only bringing on menopause but of completely and permanently stopping all hemorrhage and discharge from the uterus. After the use of radium in the uterus, there always follows what is termed a reaction. Fol-

lowing small doses this reaction is never or scarcely ever noticeable, but following a large or full dose of radium, there are certain things which frequently develop. Within the first twenty-four hours a certain percentage of the patients have some nausea and loss of appetite and sometimes there is a slight rise of temperature to 99½ to 100. From three days to ten after a full dose, frequently a considerable amount of inflammatory reaction occurs in the pelvic organs evidenced by considerable soreness and tenderness, but this rapidly passes away. In the older women above forty in whom the large doses are given, a menopause is frequently precipitated and in a certain percentage of cases symptoms of the menopause are developed.

The various results of the use of radium in the benign condition of the uterus may be summarized as follows: Immediate cessation of the periods in about 40% of the cases; one period in about 80% of the cases, two or more periods some months afterwards in about 23% of the cases; a return to normal with regular periods in about 15% of the cases. In about 5% of those cases in which immediate cessation of the bleeding occurs there has been a return after a period of about one year which has been readily controlled with a second dose of radium. There is usually a profuse leucorrheal discharge following large doses of radium in about 19% of the cases and a slight leucorrheal discharge continuing for about six to eight weeks in about 26% of the cases. Pain coming on after the third day and lasting about a week occurred in about 25% of the cases. In women above forty years of age or in those cases where larger doses have been given, about 50% of them show symptoms of menopause following their treatment.

We have had radium at our disposal for a period of twenty-five months and the conclusions reached in this paper are based upon a series of fifty-eight benign cases who have received treatment at our hands with radium up to August of this year. All of these cases have been traced within the last month and a large majorty of them examined by us and we know definitely and accurately the results obtained. I believe we may conservatively estimate that radium is the treatment of choice in all cases of small myomata whose only symptom is hemorrhage and in all types of myopathic hemorrhage and, in all types of uncomplicated leucorrhea, almost 100% cures may be effected.

THE IMPORTANCE OF THE EARLY DIAGNOSIS AND EARLY REMOVAL OF OVARIAN CYSTOMATA.*

By W. LOWNDES PEPLE, M. D., F. A. C. S., Richmond, Virginia.

The ovarian cyst is indisputably the mother of modern surgery, for it was in attacking this disease that Ephraim McDowell showed the practicability of invading the abdominal cavity. If for no other reason, then, it would be entitled to occasional consideration from its historical interest. But there are certain changes which take place in these growths and certain accidents which happen to them with far greater frequency than we are accustomed to believe unless attention is from time to time re-focused upon this important subject.

For practical purposes let us exclude from consideration in this discussion the cystic ovary—the small follicle cyst commonly met with which does not attain any considerable size. And for the same reason let us include the solid and semi-solid tumors of the ovary. There are not so many of them. They are mostly dermoids and are subject to the same changes and accidents as the true cystomata.

If one turns to the literature he is met with a mass of pathology and varying classifications, all of it instructive, but much of it of historical rather than practical interest today. We are, however, confronted with certain practical facts from which we can draw practical workaday conclusions.

There is a type of cyst that tends to grow very large, is usually on one side only, presents a smooth surface, and shows but little tendency to become malignant. This is the cystadenoma.

There is another type that shows a tendency to form papillary excrescences, either upon the outside of the tumor, or within its interior, or both. This type tends to metastasize, to involve adjacent organs, and to actually become cancerous. It is oftener bilateral than the simple cystadenoma. This type is the papillary cystadenoma.

Many writers subdivide this type into two groups, a malignant and a pseudo-malignant group—a sort of semi-benign growth with a

* Read at fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

tendency to metastasize and to produce a fatal cachexia. Surely, one had as soon die of a real frank out and out cancer, as of such an indecisive growth. The practical conclusion, however, as to the papillary cystadenoma, regardless of its subdivisions, is that it tends to kill.

We are brought back inevitably to the old question, "What is a cancer?" I know two women today who have survived eight and ten years after the removal of such growths. In neither could a complete extirpation be done. One has remained well. The other had a recurrent growth at the end of six years and is apparently well now, two years after the last operation. The specimen in both cases was pronounced adenocarcinoma by a competent pathologist.

Is it that these are semi-benign growths, or did these two women have an unusual personal resistance to cancer? It is my belief that it is the latter, for I have seen other cases go down rapidly before an apparently similar invasion.

It is also my belief that malignant change in primarily benign growths of the ovary is being met more and more frequently each year. This is a field in which lives can be saved by early operation, and to focus attention on this point was one of the main purposes in presenting this paper.

Torsion of the Pedicle.—This is a complication which turns a safe, simple procedure of election into an acute emergency; or else, if the attack passes, an easy operation is rendered extremely difficult by reason of adhesions which form about the partially strangulated tumor. If you will but turn to your records of ovarian tumors you will be startled to see how frequently this complication of torsion occurs.

We can conceive of a number of accidents that could cause a tumor to become twisted, but there are two circumstances which have a very definite bearing. One was brought out by Kelly in his classic writing on this subject. He states that when a woman has a cyst of considerable size with one side more convex than the rest of the surface, the convexity will ultimately mould itself into the concavity of the abdominal wall, regardless of the torsion necessary to accomplish this result.

The other is pregnancy; either during the pregnancy, by a change of uterine position and the consequent pushing of the tumor out of the pelvis, or by the sudden shrinking of the uterus after delivery while the pedicle is soft and pliable.

Pregnancy has a very definite relation that is, I believe, usually underestimated.

Ovarian cystoma is difficult to diagnose definitely, and this is especially true when complications are present. The single large cyst, if we can eliminate pregnancy, offers few difficulties. But how may one eliminate pregnancy? If some one would only give us a pathognomonic sign of this condition! It is one of the oldest and often one of the most honorable of institutions, and yet who among us has not at times been as frankly puzzled in the presence of a tumor of the abdomen as was Adam before the birth of Cain?

Kelly cautions us not to draw too definite a conclusion from one examination, as one made next day may prove quite different as to findings. Excellent advice for any pelvic examination. He also tells us not to hesitate to use an anæsthetic, which is also excellent advice, especially in trying to eliminate pregnancy. For a pregnant uterus may be very deceiving. It may swing to one side of the pelvis persistently. Its supravaginal portion may allow it to swing free, as on a pedicle. Its cervix may present none of the characteristics it ought to present. It may menstruate regularly.

One should never be satisfied completely that a tumor is an ovarian cystoma, unless the uterus can be made out by bimanual examination.

To differentiate between a ruptured ectopic and an acute twist of a tumor on its pedicle is difficult indeed, though academic, since either would demand immediate operative relief. A low hemoglobin estimate may throw the weight of evidence in favor of ruptured ectopic, if from six to eight hours have elapsed since the bleeding began.

To differentiate between an old pus tube and a fixed ovarian cyst is extremely difficult and at times impossible. Let me, however, make one point which is the second thought of this paper. It is this: A pelvic tumor in the region of the tube or ovary that is fixed, in the absence of any history of an acute inflammatory attack, is more than apt to be cancer. An examination of my records shows thirty operative cases that come under the classification

set forth in this paper, and further analysis of them discloses some rather interesting facts.

Age.—The youngest was fifteen and the oldest was seventy. The average age was 36.8 years.

Race.—Twenty-three were white and seven were colored.

Urinary Symptoms were marked in six cases, or 20 per cent.

Bleeding during or between periods was a marked symptom in eight cases, or 26.6 per cent.

Cysts.—There were nineteen cystadenomata, seventeen unilateral, and two bi-lateral.

Papilloma.—There were four papillocystadenomata. Two were bi-lateral and two were unilateral.

Solid Tumors.—There were seven solid tumors; five were unilateral and two were bilateral.

Cancer.—Five cases, or 16 2/3 per cent, had cancer. All were white and all were too widespread for complete removal.

Two of these were evidently primarily papillomata and had undergone cancerous change.

Torsion.—Nine tumors, or 30 per cent, presented torsion of the pedicle. Six were acute and three had had one or more attacks of torsion. There were two other cases with universal adhesions, which probably belong in this group but were excluded because the twist could not be demonstrated.

Pregnancy.—Three, or 10 per cent, were pregnant. One of these had an acute torsion, and one a chronic.

Child-bearing.—Fifteen had borne children and fifteen had not. Of the nine torsion cases, six had borne children and three had not. This leaves thirteen cases which were simple and uncomplicated, or else presented such complications as chronic or sub-acute appendicitis, fibroid uterus, salpingitis, and other conditions not stressed in this discussion.

Results.—There were no operative deaths. Twenty-four were cured. Three were improved. Two of these were cancer. Their pain and discomfort were greatly relieved by the operation. One multilocular cyst, universally adherent and suppurating, was drained. She left the hospital in good condition and was lost sight of.

Three cancer cases were unimproved. They were merely opened and closed, as the disease was too widespread to attempt removal.

Of the three pregnant women, none miscarried. One has had twins, one had one baby, and the other is still pregnant.

To Summarize.—Of the thirty cases, seventeen, or 56 2/3 per cent, presented one of the three complications on which stress has been laid in this paper; nine had torsion, five had cancer, and three were pregnant.

While the torsion cases recovered, several had had a number of attacks and were subjected to dangerous and extensive operations which would have been avoided had the diagnosis been made earlier, before the complication occurred.

Of the cancer cases, all were too late for complete removal.

Two showed from their structure that they had once been operable papillomata.

Doubtless the remaining three had also passed through an operable stage, if not an actually benign stage; and remember, that 16 2/3 per cent of all the group were incurable cancer.

The Lesson Is: Examine cases with pelvic symptoms early and often.

Examine women with too profuse menstruation, or with bleeding between periods, early and often.

Examine women with urinary symptoms; not just the urine, but the pelvic organs. This was a marked symptom in 20 per cent of the cases quoted.

When a tumor is found, remove it; while it is benign, before it becomes twisted, and before pregnancy supervenes.

1209 *West Franklin Street.*

CARDIOSPASM: WITH REPORT OF CASES.*

By R. C. FRAVEL, M. D., Richmond, Va.

Associate Surgeon St. Luke's Hospital; Visiting Surgeon Memorial Hospital.

In presenting a paper on cardiospasm, I do so not that I have anything new to present on the subject, but because I believe that cardiospasm is more frequent in this section of the country than is generally recognized. During my twelve years' connection with St. Luke's Hospital, there have been 12,000 patients admitted, and, of these, only four have

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been diagnosed as cases of cardiospasm. Plummer[1] in 1908 reported 40 cases, Sippy has reported a number of others, and Verbrycke[2] records one hundred cases. Diseases of this kind are not due to the influence of climate, race or sex, and either we are failing to diagnose these cases or else they are not being referred to hospitals for treatment. In the hope of stimulating interest in this subject, I wish to review the subject of cardiospasm and report the cases we have treated together with the results.

The term cardiospasm is unfortunate, as one naturally thinks of some heart condition when it is first heard. It would have been better had the cardiac end of the stomach received some other name. There is a well developed sphincter muscle where the esophagus enters the stomach, but normally it opens as food passes down the esophagus. Cardiospasm is an abnormal spasmodic contraction of this muscle.

In reviewing the literature, it is not very definite as to who first described the condition; the names of Howe, Hoffman, Sippy, Einhorn, Ewald, and von Strumpell, are frequently mentioned. Mikulicz in the early eighties had a very clear idea of the disease and described an operation for its relief. Erdman[3] in 1906 reported a case in which Mikulicz's operation was done with perfect cure. The article of Plummer already referred to, in which he reported 40 cases, summarizes about all our present knowledge. Plummer described in this article his dilator which has so simplified the treatment of the disease. Verbrycke's report of 100 cases constitutes the largest number recorded by one observer. This writer includes, however, many cases cured by medical treatment, only 18 of the hundred requiring mechanical dilatation.

Literature is filled with reports of one or more cases and a thousand all told must be on record and many more not recorded. There arises the question of how slight a spasm of the muscle should be diagnosed cardiospasm. We might be technically right in calling a transient difficulty in swallowing, which occurs in almost every one at some time or other, cardiospasm, but I believe we should be able to demonstrate a definite lesion at the cardia before we make such a diagnosis.

Plummer describes three stages of true cardiospasm; first, a spasm which causes an obstruction that the esophagus is able to overcome so food passes into the stomach; second, a spasm which causes an obstruction that the esophagus cannot overcome so food is temporarily retained; and third, a spasm which causes an obstruction that results in more or less permanent retention of food with organic dilatation of the esophagus. Cases may be seen and diagnosed in any of these stages, but the second and third are the easiest to recognize, and most cases seen are in one of these two stages.

As in many conditions occurring in medicine, where the etiology is not absolutely known, many causes have been assigned for cardiospasm, such as hysteria, neurasthenia, and other neurotic states; psychic, reflex and toxic conditions, perverted internal secretions, disturbance of the vagus nerve, organic lesions in the cardia and perversions of Keith's nodes. The two causes that appear most logical are that it is due to a fissure in the cardia which acts similarly to a fissure-in-ano, causing spasm of the muscle, or that, as claimed by W. J. Mayo[4], it is due to errors of Keith's nodal system and failure of the second node to relax the cardia. One might engage in extensive mental gymnastics and then not arrive at the exact cause of the disease, hence I will pass on to what is more important to us, namely the symptoms, diagnosis and treatment.

The symptoms of cardiospasm are almost identical with those of stricture of the esophagus. They differ in that they are not continuous as is the case in the organic stricture, for these patients have periods when food passes into the stomach fairly well. Then there is the absence of a history of swallowing caustic which is so often present in nonmalignant organic stricture. Also liquid foods pass into the stomach with as great difficulty as solids, a very important point in symptomatology. There is painful and difficult swallowing; a burning in the chest and a choking sensation. Food seems to stick beneath the sternum and gives rise to the sensation many people have after swallowing a pill. Spitting up food is an important symptom and occurs soon after eating or later, according to the amount of dilatation in the esophagus. I use the word spitting up in place of vomit-

ing because the material comes from the esophagus and not the stomach and contains no acid. There is loss of weight because of starvation from inability of the food to reach the stomach and at times emaciation is very considerable.

The diagnosis of cardiospasm is confirmed by X-Ray findings and, in suspected cases, this examination should be made when possible. Certain procedures are justifiable and advisable when X-Ray is not available. A stomach tube will rarely pass into the stomach, and, if there is retention in the esophagus, there will be the escape of food products which contain no hydrochloric acid. An esophageal bougie, being stiffer than a stomach tube, will usually pass into the stomach if pressure is made for a few seconds to relax the spasm at the cardiac opening. The passage of a fairly large bougie will sometimes give relief for several weeks. If we are satisfied we are dealing with stricture, a differentiation must be made between an organic stricture and a spasmodic condition. There will be as much difficulty in passing a bougie as a tube in the organic stricture, and there is a history of gradually increasing difficulty in swallowing, first solids giving trouble and later liquids being taken with difficulty.

Cancer of the lower end of the esophagus is perhaps the most difficult and important condition to exclude. Its presence here often causes spasm of the cardia, and treatment of cancer for cardiospasm would be a very dangerous mistake. Turn your case over to a competent roentgenologist and tell him to look for cardiospasm. If a thick barium meal is given and watched with the fluoroscope from the time it is swallowed until it gets into the stomach, it will solve the question. Cardiospasm shows a smooth pointed obstruction and cancer shows a marked irregularity. If one observation is not conclusive, wash out the esophagus and make another examination. I would not call a case cardiospasm that could not be demonstrated by a man doing good X-ray work. I know nothing of X-ray work myself but have faith in the ability of well trained men to diagnose the condition.

The treatment of cardiospasm is simple and the cure is usually immediate and complete. It consists in mechanically stretching the cardia to a degree to cause it to permanently relax. The principle of the way to cure these cases originated with Mikulicz[5] who diagnosed and operated upon four cases. He opened the abdomen, incised the stomach and, with the fingers up in the cardia, stretched it, and all his patients were cured. Taking the hint from this, Russell, in England, and Sippy and Plummer, in this country, devised dilators which could be passed into the cardia through the mouth, thus taking the place of the fingers up in the cardia through the stomach and saving the patient the danger and discomfort of an abdominal operation.

The Plummer dilator consists of a slim double rubber bag five or six inches long between which is a bag of silk. It is distended with water which gains access to the inner bag through the staff or handle which is a hollow stiff bougie. It has on the end an olive tip which is perforated for the passage of a thread to be swallowed by the patient and used as a guide if there be difficulty in getting the dilator into the cardia. The water pressure is regulated by a gauge and about 20 pounds pressure is used. This instrument is passed into the stomach and it is then withdrawn until the collapsed bag is in the cardia, when water is gradually allowed to distend it. If the bag is not well up in the cardia it will pull back into the stomach and sometimes several attempts are necessary to get it into proper position. One stretching will usually effect a cure. Usually 20 pounds pressure is employed unless there is pain before this point is reached. The muscle by this dilatation ceases its spasmodic contraction and, if the condition is due to a fissure, the lesion is cured, the cause of the spasm removed in a way analogous to the cure of fissure-in-ano by the classical operation. The treatment of cardiospasm is simple, easy, and can be done on office patients. Accidents have been reported but so far we have had none. When we do, I believe it will be due to a wrong diagnosis and not to treating a genuine cardiospasm in the manner described. So far we have not failed to cure a case though the number treated is small. If symptoms are not relieved, I believe it will be due to treating a hysterical patient rather than one who really has cardiospasm. The following is a brief report of our cases.

Case 1. Mr. C., a prominent Richmonder,

age 65. For 10 years has had difficulty in swallowing his food; it seems to stick and would then pass into the stomach or be regurgitated, usually the latter. Fluids as hard to swallow as solids. Loss of weight 25 lbs. X-ray examination with bismuth meal shows constriction at the cardia. Diagnosis cardiospasm, with dilatation of the esophagus. He was dilated once with Plummer's dilator using 40 pounds pressure. This was too much but was run this high unintentionally. Result: Immediate relief, regained his weight in three months, never had any return of his trouble. He died of pneumonia six years later.

Case 2. Mr. H. 27 years old, from Alabama. Loss of weight. Painful swallowing, spitting up food very soon after taking it. Three years' treatment for so-called indigestion. Stomach tube could not be passed into stomach. Bougie passed an obstruction by light pressure. X-ray diagnosis cardiospasm. Treatment: Dilatation with Plummer's dilator. Relief immediate. Letter two years later reports entirely well.

Case 3. Miss D., age 13. For a number of years has had pain beneath the sternum and a choking sensation very soon after swallowing food. Each time after eating a good portion of the food is regurgitated. X-ray diagnosis cardiospasm. Dilated with Plummer's dilator. Relief, but not complete. Dilated the second time 6 weeks later. Is now completely relieved.

Case 4. Mrs. F., age 42. For four years has had indigestion. Lost much weight. Appetite good. Food is well chewed but causes discomfort as soon as swallowed and she thinks that the most of it comes back sometime during the day. There are periods of a few days each when she can take food with little discomfort but most of the time it is impossible to keep it down. She had been on medical treatment, lavage, etc., for four months, before she was referred to us. Treatment: Dilated with Plummer's dilator. Relief immediate and complete. Returned in six weeks and reports she is entirely well and has gained 26 lbs. Four months have now elapsed and her son tells me she is entirely free from symptoms.

NOTE—Since writing the above, Case 3 returned with symptoms as severe as ever. X-ray showed the cardiospasm still present. My belief is that it has not been properly stretched, and the relief obtained was temporary from dilatation with the end of the dilator. The difficulty arises because the patient is a 13 year old child. I have dilated her again, this time passing the dilator and watching it with the fluoroscope, making positive of its position and assuring adequate dilatation.

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5. Deutsch Med. Wchnschr., Jan. & Feby., 1904.

THE EXAMINATION OF THE EYE IN NEURO-SURGICAL PATIENTS.*

By JOHN H. BAIRD, M. D., Richmond, Va.

Scientific observation of the eye in all patients presenting symptoms of intra-cranial disease is of the utmost importance, and it may easily be said to occupy the foremost place in the neurological examination of every case of brain pathology. It is not my purpose to deal exhaustively with the subject of the eye in its relation to neuro-surgical conditions, but to point out as briefly as possible the outstanding features of the routine neurological examination, and to attempt to explain the mechanics and the clinical significance of a few of the most important optic phenomena peculiar to such cases.

My interest in the subject has been prompted largely by the unusually high percentage of patients suffering from brain tumor that have come under my observation during the past year, who had either become entirely blind or whose vision was seriously impaired. The purpose of this paper, therefore, is virtually an appeal for an increasing interest in the examination of the eye for the purpose of detecting a possible intra-cranial lesion in patients presenting symptoms of disease of the central nervous system.

It seems to me that the apparent lack of enthusiasm and interest in the subject of brain tumor is, to a considerable degree, due to the widespread belief that practically all such cases are hopeless, with or without surgery. Then, too, it is current belief that a tumor of the brain is a very unusual condition. To answer this latter statement, one is impressed

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more and more, as time goes on, by the frequency of intra-cranial tumors, and hospital records show that the brain is almost as frequently the site of tumors as are other organs. There is only one satisfactory treatment for such lesion and that is complete surgical removal. It is impossible to even imagine that growths of the brain ever disappear of themselves or are cured by any form of medical therapy. It is true that radium and the X-ray have their place in conjunction with surgery, but these forms of treatment are of value only after the tumor has been extirpated, so far as possible, at operation. So, when one considers the fate of these patients who have been subjected to one or another form of medical treatment, without relief of such symptoms as loss of vision or seriously impaired vision, unbearable headache and persistent vomiting, it is seen at a glance that such misdirected therapy only serves as a delay which invites adversity. Someone has very aptly said, "There is a time in the life-history of every tumor when it may be removed with relative ease and with an almost one hundred per cent chance of a complete cure." This opportune time is only too often lost in wasteful waiting: the patient is frequently not studied at all or else he is treated for one or more of his many distressing symptoms until he has passed beyond the stage where surgery can be of any benefit. It is safe to say, however, that the time is fast drawing near when physicians will recognize the disastrous results of delay in patients suffering from brain tumor and will see to it that proper examinations are made and appropriate treatment is immediately instituted. Many special tests, such as the X-ray, the Barany tests, and several others, are of undoubted value in the localization of intra-cranial lesions, but first of all a careful and complete history of symptoms should be recorded, together with a painstaking neurological examination, the rough and essential parts of which can be quickly and satisfactorily performed.

There is perhaps no other one method of approach to the secrets of intra-cranial pathology nor one which offers more real information than the examination of the eye. Every patient presenting symptoms of persistent headache, with or without vomiting and nausea, and visual disturbances of any degree, should be considered as a potential case of brain tumor and studied accordingly.

The ocular signs and symptoms which help in localizing brain tumors may be the expression of local or of distant action of the growth, and it is very often very difficult to distinguish between these two possibilities. The most frequent change in the eye in brain tumor is a lesion of the optic nerve in the form of papilloedema, optic neuritis or simple optic atrophy. The most recent explanation for the development of choked disc or papilloedema is that given by Schick, who believes it to be the result of increased intra-cranial pressure as the natural result of hydro-cephalus, with an abnormal accumulation of cerebro-spinal fluid in the inter-vaginal space. This fluid surrounds the optic nerve, which in turn distends this space and compresses the central artery and vein of the retina which passes through it and to some extent strangulates the nerve head itself. This purely mechanical etiology of choked disc has been borne out by animal experimentation and is now accepted.

As the intra-ocular and the intra-cranial pressure are normally the same, it has been stated that choked disc is a manifestation of a disturbed equilibrium between these two. When the intra-cranial pressure rises, the cerebral venous pressure rises and coincidently the pressure in the retinal vein, with a resulting congestion and swelling of the optic nerve head. Papilloedema is usually present in both eyes, but does not necessarily appear in both at the same time, for the age of the process may be different on the two sides. Optic neuritis, almost similar in appearance, but usually with less elevation of the disc and with more extensive involvement of the retina, occurs with meningitis. This variety may be said to be more of an inflammatory nature and the eye of the affected side of the head is the one first involved. More or less typical choked disc may be seen in certain cases of advanced nephritis, but, here again, there is more extensive involvement of the retina and with less tendency to a localization of the choking process. Needless to state, the history with the special laboratory findings should, in most instances, clarify the diagnosis.

The early or late appearance of papilloedema depends, to a great extent, upon the location of the tumor. Obviously, tumors which

interfere with the normal drainage of cerebrospinal fluid from the ventricles show pressure phenomena earliest; hence the prompt appearance of choked disc in lesions of the posterior cranial fossa due to the upward and forward pressure upon the aqueduct of Sylvius.

Let us now view this question of choked disc from a smaller angle and consider a given case. When the manifestations of hydrocephalus are just beginning, the ophthalmoscope shows that there is a very slight œdema of the nerve head which veils its nasal margin. Then the upper and lower margins of the disc become veiled, the veins become dilated and tortuous from direct pressure upon them and, resulting from this process, the nerve head and surrounding retina become swollen with œdema. Very often hemorrhages appear in the retina coincident with the changes just described. Several weeks after the beginning of the pressure phenomena, the œdema of the retina subsides to some degree and the nerve head projects forward as a rounded, grayish, pulpy mass. This may be considered as the height of the process and usually continues for some months. Later on, secondary atrophy always occurs, which shows itself as a general pallor of the disc. The swelling from this stage on gradually becomes less marked, until it disappears altogether to be replaced by a pale nerve head with indistinct margins and a persistence of the vessel changes.

A primary optic atrophy is not infrequently seen in cerebral tumors, though its presence is by far much less frequent than choked disc. This change in the nerve head results from direct pressure upon the optic nerve and is most commonly seen in tumors of the pituitary gland. This phenomenon, together with bitemporal hemianopsia, bitemporal headache, changes in the conformation of the sella turcica and the presence of constitutional disturbances relative to hypophyseal disease is quite characteristic of such lesions. The ophthalmoscopic picture is that of a pearly white disc, the outline of which is exceedingly distinct.

The disturbance of vision in choked disc has a number of characteristic features; thus, sight may remain unaffected for a long time with pronounced ophthalmoscopic changes. Secondly, temporary blindness frequently occurs and presumably indicates variations in the intensity of the intra-cranial pressure. Subjectively, the patient complains of a cloud over his vision which gives considerable annoyance. When central vision is tested with the usual test card, it will usually be found to be normal or nearly so, while examination of the visual fields will show them to be defective. There may or may not be concentric contraction of the field for white, but routine examinations have shown that there is nearly always a concentric contraction of the fields for color, no matter where the tumor may be located. So it is seen that peripheral vision is the first to go, central vision becoming impaired later, as the process ages. At this time, fluctuations of vision may occur. During the hours when the intra-cranial pressure is unusually high, the headache will be more severe and the sight will be more blurred. When this stage is reached, some sort of operative intervention is absolutely necessary to save the vision.

Hemianopsia occurs in tumors of the brain quite frequently. The homonymous variety is most commonly observed when the tumor is situated in the occipital lobe. In these cases, visual hallucinations, optic aphasia, alexia and mind blindness are usually present, especially if the growth is an extensive one. Homonymous hemianopsia is also produced by pressure upon the optic tracts. A tumor in this instance is situated either at the base in the middle cranial fossa or in this neighborhood. A tumor of the pituitary, with the greater part of the mass extending to one side, would produce such a picture. Choked disc may or may not be present, depending entirely upon whether the ventricular drainage is encroached upon by the growth and the relation of the latter to the optic nerves. In a small percentage of cases, the tumor producing the hemianopsia is situated in the region of the primary optic centers and of the optic conducting paths in the internal capsule. In these cases an associated hemiplegia or hemianæsthesia, or both, is, of course, common. When the lesion causing hemianopsia involves the corpora quadrigemina, paralysis of the ocular muscles and deafness are likely to occur. Bitemporal hemianopsia is caused by pressure upon the crossing fibers in the optic chiasm and is very commonly due to an enlarged pituitary gland. This, however, is not a pathog-

nomonic sign of hypophyseal disease, for Cushing has shown that it occurs in only about one-half of the cases. Here, again, a tumor of the middle fossa, such as one growing downward from the third ventricle, will give the same picture.

Tumors which press upon the chiasm or upon the optic nerves directly anterior to it have, in exceptional instances, caused a central scotoma. Blindness in one eye, with the ophthalmoscopic picture of primary optic atrophy and the gradual loss of the temporal half of the field of vision in the other eye, is an important symptom complex, which indicates a process localized in the middle cranial fossa in which one optic nerve and the chiasm are involved.

Paralysis of the extra-ocular muscles occurs in only about one-third of the cases of brain tumor. The sixth and the third nerves are affected in about the same proportion of cases, the sixth perhaps somewhat oftener. The fourth generally escapes, unless it is involved together with other ocular nerves, producing a more or less complete ophthalmoplegia. An isolated paralysis of the sixth nerve, shown by an internal squint, is usually a distant symptom in increased intra-cranial pressure. This is quite common but has no localizing value, since it seems to be caused by pressure upon the nerve trunk by a cerebellar artery, and is a sign, therefore, only of increased intra-cranial pressure. The combination of an abducens paralysis with bilateral choked disc always strongly suggests brain tumor. The combination of a sixth and third nerve paralysis usually indicates a basal situation of the lesion. The third nerve is involved in a variety of ways and to a varying degree. In cases of nuclear paralysis of the muscles supplied by the third nerve, very frequently the sphincter of the pupil and the muscle of accommodation are spared, thus producing an external ophthalmoplegia. The levator of the upper lid is usually not affected until late.

The examination of the pupils should always constitute a part of the eye examination in neuro-surgical patients, though it has been definitely proved that anomalies have very little bearing upon the localization of the lesion. In a word, the pupils offer us but few points in the diagnosis of intra-cranial tumors. The pupillary findings in injuries of the cervical sympathetic are interesting. It will be recalled that the sphincter muscle is supplied by a branch of the third nerve which, when stimulated, causes a contraction of the pupil and, when inhibited, causes a moderate dilatation. The iris is also supplied by fibers from the sympathetic chain, by way of the ophthalmic branch of the fifth cranial nerve which, when stimulated, causes a dilatation of the pupil. This latter phenomenon is often well illustrated in injuries of the spinal cord involving the cilio-spinal center which is located at the level of the eighth cervical and the first thoracic segments. When this center is stimulated, there result a widening of the pupil on the affected side, slight exophthalmos and a widening of the palpebral aperture, but, on the other hand, when the process is a destructive one, as usually occurs in injuries, like gunshot wounds of the neck, there are a contracted pupil, enophthalmos and ptosis.

The belief that a blood clot or tumor or some other space-restricting lesion is usually found on the same side of the brain as the dilated pupil is now known to be absolutely unreliable and therefore no dependence can be attached to such a finding.

Nystagmus or the oscillation of the eyeball in one or another direction is of value when acquired after early infancy. Nystagmus on looking upward often indicates a lesion in the region of the mid-brain. Marked nystagmus on looking to one side may mean a pontine lesion, while a nystagmus, coarse and slow to one side and fine and rapid to the other, commonly means a cerebellar lesion on the side toward which the slow nystagmus is directed.

The fifth nerve which supplies sensation to the cornea is not so often involved in cerebellar tumors as in tumors situated in the middle cranial fossa. Diminished sensation of the cornea is of the utmost diagnostic value and always means a gross lesion of the fifth nerve.

Conjugate deviation of the eye is perhaps the most frequent disturbance of ocular movement in cerebral hemorrhage. In recent hemorrhage it is said to be much more frequent. The conjugate deviation in hemiplegia is very probably due to the overpowering influence of one hemisphere over the other. Its localization is still unsolved, and it seems improbable that this symptom depends upon a lesion of

a definite part of the brain, because it has been observed in lesions in practically all parts of the brain.

Pronounced mono-lateral exophthalmos in tumors of the brain usually indicates a direct involvement of the orbit. It may possibly be produced by the increased intra-cranial pressure with compression of the cavernous sinus and the subsequent venous stasis.

The ophthalmoscopic findings in acute cerebral injuries may be of the greatest help in the determination of the amount of intra-cranial tension and the indication for sub-temporal decompression. In the early hours after an injury to the brain, it is exceptional to find marked evidences of pressure in the discs, but after this time, as the intra-cranial tension increases, the evidences of early papilloedema become more pronounced. The tortuosity and fullness of the retinal veins, the hyperemia of the discs and the beginning œdema of the nasal halves of the discs furnish valuable information upon which a definite plan of treatment may be instituted.

The examination of the eye-grounds and systematic records of the brain tension, as determined by measurement of the pressure by the mercury manometer at lumbar puncture, supply data of great precision, and these methods are indispensable aids as routine investigation, except in the most obvious cases.

The points and observations here recorded have been presented entirely from the standpoint of the examination of patients with neuro-surgical lesions, and the finer examinations involved in ophthalmoscopic study must be determined by a competent ophthalmologist.

Discussion

Dr. Tom Williams, Washington, D. C.:—I think we must all agree with Dr. Baird that the observance of the points on which he spoke regarding the eye had better be performed by competent men. However, most of the kind of symptoms of which he spoke had to do with cases which we neurologists should call advanced, which had undergone great development in the disease. Now, if we are to do anything in some of the cases, it had better be done earlier. In many of the cases, signs have already appeared that can be ascertained by the finer methods of neurological examination long before there are any signs in the eye. Again, some of those cases have to do with methods of medical examination not strictly neurological. For instance, it is quite common to find disease in which there are no symptoms referable to the eye at all, and yet in which are very distinct neural signs, all of which disorders can be ascertained other than by examining the eyes before the patient calls for any eye examination; so that we must not forget that the majority of conditions on which Dr. Baird spoke are much more extensive than ordinary local problems and require a very complete examination of the nervous system by signs many of which are not in the eye. I am referring to such signs as are not in the text books, which are very important in relation to the eye, viz., the sensibility, and such re-actions as those defined on douching the ear. The differences of the reflexes and tonus and synergy on the two sides of the body are of great importance, as are sometimes modifications of the mentality. So that while we always feel we must have a proper local survey of such cases, we must not fall into the danger of waiting until the eyes are affected by increased intra-cranial pressure causing choking of the optic disc. The neurologist expects to detect disease long before this.

THE DIAGNOSIS AND TREATMENT OF DIPHTHERIA.*

By W. L. HARRIS, M. D., Norfolk, Va.

It may seem rather commonplace to some of you for me to bring such a subject before you this evening for discussion, for you might say, of course, anybody can diagnose and treat such a simple disease as diphtheria; but, as a matter of fact, all of us do not correctly diagnose and treat diphtheria, for if we did, there would not still be a mortality from this disease of about 10 per cent. It would seem rather remarkable that we should have such a mortality from a disease that we know practically everything about; there is a known specific cause and a known specific treatment, and yet practically ten per cent. of all cases die. What are the difficulties in handling this disease and how can these difficulties be overcome? These are the questions for our discussion this evening.

If every case of diphtheria could be seen by a physician within 24 to 48 hours from its onset and properly diagnosed and properly treated, we should have a mortality of not over one or two per cent. Of course the physician is not responsible for what takes place before he sees the case, but he should be and is responsible for the handling of the case after he sees it. Why are physicians not called earlier in so many cases? It is simply due to ignorance or conceit on the part of the parents: they attempt to make their own diagnosis and treat the case accordingly, until all of a sudden they find the child is ill and then they rush for a physician. For years in my own private practice I have tried to impress on all mothers

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the fact that when a child is hoarse or has a sore throat, a physician should be called at once.

The diagnosis of faucial or tonsillar diphtheria is a very simple matter as a rule; nobody can tell you how to diagnose a case of diphtheria, you must learn it through clinical experience. The appearance of the membrane is familiar to all of you but do not depend too much upon your expertness in differentiating the type of deposit on the tonsil. If the condition looks suspicious, use antitoxin at once and then you may speculate as to what it might be. Every throat that has any deposit should have a culture taken without exception. If you will follow this rule you will be surprised to find out how many of your simple tonsillar cases are real diphtheria. No man can afford to presume he is expert enough to say from appearances alone that any deposit on a tonsil is not diphtheria. If he does, both he and his patient will come to grief sooner or later.

Another point to be noted is that we should not depend too much upon a single negative culture. If the case really looks like diphtheria, treat it as such in spite of a negative culture. There are a lot of conditions that might produce a negative culture in a true case of diphtheria. I saw a fatal case of this kind sometime ago in consultation. The physician saw the case on the second day of illness and the throat looked suspicious, so he took a culture but did not give antitoxin, and the next day the cultnre was reported negative. He did not go to see the child but, relying upon his culture, 'phoned the mother that it was only a case of tonsillitis and not diphtheria. That afternoon the child seemed to the mother to be so much sicker she phoned for the doctor and when he saw the child he was convinced it was diphtheria and he gave antitoxin at once; however, it proved to be too late as it was one of those very virulent types of infection and it rapidly grew worse. When I saw it in consultation the next morning it was moribund and died while I was present.

The nasal type of diphtheria is very much more common than is usually supposed, and if we more often took cultures of suspicious nasal discharges we would do away with a lot of troublesome carriers in the schools. This type of diphtheria is seldom fatal unless it extends to the throat or larynx. A child with a persistent, bloody purulent nasal discharge should always have a culture taken. If this is done you will be surprised how often you will find it to be diphtheria.

The laryngeal type of diphtheria is very much harder to diagnose, and this is the type which furnishes most of the fatal cases. Laryngeal diphtheria has to be differentiated from plain simple spasmodic croup and acute catarrhal laryngitis. Most of you are, no doubt, familiar with the rules put down in some text books as to the differential points in distinguishing simple croup from laryngeal diphtheria; do not follow these rules too blindly or you will come to grief; if in doubt, use a big dose of antitoxin and then speculate as to what it might be. As a rule, spasmodic croup comes on very much more abruptly and more often at night, the symptoms are very acute and alarming but subside under simple treatment, such as emetics, inhalations, and sedatives, and by the next morning the child seems practically well. However, this is not invariably the rule, for a simple croup may last all day and may begin at any time of day. In my experience, the most distinguishing point in the diagnosis of laryngeal diphtheria is, as a rule, the very gradual onset, a simple hoarseness gradually getting worse, obstruction to both expiration and inspiration, and the fact that it is uninfluenced by inhalations, emetics and sedatives. Do not depend upon cultures from the throat or pharynx in differentiating a primary laryngeal hoarseness; a negative cultnre is apt to mislead you, and you seldom get a positive one. A laryngeal diphtheria coming on secondary to tonsillar diphtheria should, of course, be readily recognized.

Now, as to the treatment of diphtheria, we have an absolute specific, and if it could always be properly used we should have very few deaths from diphtheria. Why is it not used properly? Simply because a great many men are still timid about its use, and do not use it early enough and in large enough doses. It may be considered practically harmless in all size doses, so why hesitate about its use?

My chief criticism of the way it is used is that it is given in too small initial doses with the idea of repeating if needed. Whenever I give a dose of antitoxin I do it with the idea of not having to repeat it; I try to give enough in the first dose. If the patient needs antitoxin the first dose should be big enough to do the work, and it should not be necessary to repeat it. If it is going to take 10,000 units of antitoxin to counteract the toxin in your patient, why give 5,000 today and 5,000 tomorrow or the next day? The 10,000 at once will do the work much better.

Of course, each individual case has to be treated upon its own merits, but my rule is never to give less than 5,000 units in any simple tonsillar case, if seen reasonably early, and, if seen after the third day. I use 10,000 units or more according to the severity of the case, it matters not how young the child is. The dose seldom has to be repeated. Many of the text books will tell you to repeat the dose in 8 to 12 hours if no improvement is noted or if the temperature does not come down. As a matter of fact, there is usually a reactionary temperature from the administration of antitoxin and in 6 to 10 hours the temperature may be elevated at least 2 or 3 degrees. The beneficial effects from antitoxin are not seen in my experience, until from 24 to 36 hours. I do not worry if the child is no better in 24 hours, for I know from experience that if the child has been given sufficient antitoxin, it will do the work within another 12 to 24 hours. I have never seen any special benefit from the excessively large doses of antitoxin that are sometimes given. Ten to 20 thousand units ought to be enough for any tonsillar case.

As to the treatment of laryngeal cases, this is the place a physician has to act promptly and do the right thing at the right time, if he expects to save his patient. It is no time to speculate or theorize as to what this persistent croup or hoarseness might be. Do not wait for the report of a culture. If the child does not improve promptly under emetics, inhalations and sedatives, give antitoxin at once and give a large dose, at least 10,000 units in the mildest cases, and, if the symptoms are at all urgent, give from 15 to 25 thousand. If you have acted promptly and if you have seen the case reasonably early it will seldom be necessary to repeat the dose of antitoxin.

If laryngeal diphtheria is properly treated, there should very seldom be any necessity for intubation. Most of the cases that come to intubation have been neglected in some way by somebody. This neglect is of three kinds. First, the parents may have neglected to call the physician early enough. Second, the physician has neglected to make a diagnosis promptly, or third, has neglected giving antitoxin in large enough initial doses.

538-541 *Monroe Building.*

SOME CLINICAL MANIFESTATIONS OF CHRONIC APPENDICITIS IN CHILDREN: DIAGNOSIS BY ROENTGEN RAYS.*

By A. L. GRAY, M. D., Richmond, Va.

At the 1919 meeting of the Southern Medical Association, Dr. McGuire Newton, of Richmond, Va., presented to the Section on Pediatrics a paper in which he reported four cases of chronic appendicitis in children occurring in his own practice. None of these showed any symptom suggestive of involvement of the appendix, and while most of his cases had some common complaint, they were in many respects dissimilar. Having made the roentgenologic studies of his cases and with the intention of reporting additional ones substantiating the views expressed, the writer wishes to review the subsequent course of the cases already reported and to present several others.

The relative infrequency in children of chronic appendix involvement, as compared with acute appendicitis and its complications, will be impressed upon every doctor who has had an extensive pediatric experience, when he attempts to recall the cases occurring in his own practice in which he has been willing to make an unqualified diagnosis of chronic appendicitis. This fact led Dr. Newton to make the investigations that were the basis of his report.

While the cases that have come to operation are still too few to justify one in attempting to tabulate the conditions that may be directly or indirectly due to a chronic appendicitis or

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its results, they are sufficient to justify the belief that this condition is often responsible for some exceedingly intractable and, so far as their causes are concerned, very obscure maladies. A brief review of the cases reported and their progress to date is as follows:

Case 1. Herman S., white, male, age 9 years, began to have violent attacks of acidosis at fifteen months of age. After an interval of ten months' normal development, he began to have repeated attacks which steadily increased in frequency, until at the age of four years it was found that the attacks could be prevented by calomel. This child was, therefore, given calomel at regular intervals of three weeks for a period of four years. He was nearly free from his acidosis during this period, but he had begun to have frequent attacks of headache and constipation and, on January 18, 1919, was referred for a study of his gastro-intestinal tract.

The roentgen rays revealed no abnormality of his upper gastro-intestinal tract, but showed that he had a tortuous appendix four or five inches long containing fecal concretions near its tip and a constricted lumen proximal to the concretions. Its tip was firmly fixed in the iliac fossa. There was not the slightest tenderness on pressure over the appendix.

Operation by Dr. Robert C. Bryan on January 27, 1919, revealed "A very large appendix, five inches in length, fixed at its tip. The appendix showed two enteroliths each about the size of a date seed, one at the tip of the appendix, and the other two inches from the appendicular opening. The appendix was subacutely inflamed, the blood vessels engorged and the middle one-third of its lumen much narrowed." It is now one year and eight months since the operation. He has had no attack since and has required no calomel.

Case 2. Virginia W., white, female, age 7, began what appeared to be cyclic vomiting at the age of three years. These attacks lasted from one to three days and were attended by constipation and high temperature, but no abdominal pain or tenderness. During the intervals between attacks she was constipated, requiring laxatives, was highly nervous and irritable, her appetite was poor, she became very anemic and was considerably under weight. She frequently complained of abdominal discomfort, which was relieved by rubbing.

Roentgen ray examination on April 2, 1919, revealed conditions in the upper digestive tract practically normal. She had a moderately dilated cecum extending low in the lesser pelvis from which position it could not be removed. A very small appendix lumen was seen coiled behind the cecum and could not be displaced from its apparently fixed position.

Operation by Dr. C. R. Robins on June 30, 1919, was reported by him as follows: "Cecum of mobile type, with long mesentery which permitted considerable motion and was easily delivered on abdomen. Appendix lay behind the cecum and was curled up and firmly adherent and contained several small concretions distal to this. The appendix was very hard and distended and about three inches in length and nearly as large as the little finger."

In this case the contents of the lumen had prevented complete filling and no very definite idea of the size of the appendix could be obtained. The long mesentery had permitted the cecum to swing into the lesser pelvis where it was imprisoned by the pelvic organs so that it could not be released by manipulation at the time of the roentgen ray examination.

Dr. Newton reports that since the operation, sixteen months ago, he has had occasion to visit her only once and then for a rather severe cold. She is now entirely normal and has had no further attacks similar to those prior to the operation.

Case 3. Garnett T., white, male, age 6, began to have bronchial asthma and acidosis after his first year, following eating an egg for the first time. Attacks became frequent, the two conditions appearing to alternate with each other. The acidosis attacks were lessened somewhat by a monthly dose of calomel, but his asthma did not materially improve.

After five years in which very little headway had been made toward overcoming his trouble, a gastro-intestinal roentgen ray examination was made, which revealed a moderate pylorospasm and an appendix curved and fixed in the right iliac fossa with what appeared to be non-obstructing adhesions bind-

ing the small intestine coils in the right lumbar region.

Operation by Dr. Stuart McGuire verified the roentgen ray report.

More than a year has now elapsed since the operation and there has been no attack of acidosis. There are, however, occasional attacks of asthma.

Case 4. Jane H., white, female, age 5, had been suffering since infancy from violent attacks of urticaria. These would last several days and were the cause of intense discomfort. They were increasing in frequency and severity. Her history was negative except for slight pain in her right side when exercising violently and when fatigued. There had never been any abdominal tenderness.

A gastro-intestinal roentgen ray study revealed an appendix that was very long and passed upward and inward to the front of the fifth lumbar transverse process, made a loop and passed downward, its tip being fixed in front of the first anterior sacral foramen on the right side.

Operation by Dr. Stuart McGuire verified the conditions described in the roentgen ray report.

One year has elapsed since the operation and when last reported some three months ago, she had no further urticarial attacks.

To these may be added since the foregoing cases were reported:

Case 5. Mary D. H., white, female, age 4½ years, referred by Dr. A. C. Monroe, of Doswell, Va., began to have attacks of acidosis at 2 years of age and had them regularly since that time at intervals of 2 to 4 weeks. Despite dietary and medicinal measures she continued to have them without abatement in the frequency or severity.

A gastro-intestinal roentgen ray examination was made April 1, 1920, with the following report: Stomach appears normal. Duodenal bulb fills incompletely but nothing significant is present.

Six Hour Examination: Stomach and upper small intestine are empty, barium as far as hepatic flexure. Terminal ileum is visible, movable, and appears normal. An irregular line, possibly the appendix, passes upward from the ileocecal junction for about two inches. Patient is not materially tender in this region.

Twenty-four Hour Examination: Patient has had two stools since the six hour examination. Cecum and ascending colon fairly well filled, the remainder of the colon, as far as the lower sigmoid, nearly empty. Traces only are visible but outline the course of the colon. Rectum and lower sigmoid well filled. Appendix is irregularly filled, is 3 or 4 inches long, and shaped like an interrogation point. The tip appears to be fixed to the inner side of the ascending colon near the hepatic flexure. Its middle is movable, but the lumen is markedly dilated. About one inch from the base there is a constriction. The tip of the appendix shows vacuolation.

Conclusion: Patient has a very long dilated appendix with a constriction near its base and probably a fecal concretion near its distal extremity. Patient's symptoms are probably the result of the condition of the appendix.

The operation by Dr. W. L. Peple, April 13, 1920, as reported by him is: "McBurney's incision. Long, patent, large, sub-acutely inflamed and chronically diseased appendix removed."

The following letter from Dr. Monroe, dated October 16, 1920, has been received:

"Replying to your letter of the 15th will say that Mary D. H., was operated on by Dr. W. L. Peple on April 13, 1920, returning home from the Hospital on April 22nd and, from that time to this, her health has been perfect."

"It is interesting to note that before the operation she suffered from obstinate constipation. Since, her bowels have been perfectly regular."

Case 6. Elizabeth F., white, female, age 7 years, referred by Dr. R. C. Fravel, August 11, 1920. She had had frequent attacks of nausea and vomiting during the past several years. Her tonsils were removed three weeks before with the idea that they might be responsible. The present illness began six days before with nausea and vomiting and slight fever. Unlike the other cases reported, she developed some pain along the right side of the abdomen especially when walking. She had had no fever for the past few days, but her pulse had continued rapid. Her urine had been cloudy dur-

ing this attack. Physical examination elicited some tenderness in the right lower quadrant. Examination of her urine showed a faint trace of albumin, a few leucocytes and occasional granular casts.

The report of the gastro-intestinal roentgen ray study is as follows: Stomach normal in size, shape, and position. Shows no filling defect. Duodenal bulb small and emptied rapidly but is smooth in contour and normal in shape for this age.

Six Hour Examination: Stomach empty. Meal has reached transverse colon. Terminal ileum not well filled but no abnormal accumulation is present. Cecum appears normal. Appendix is not now visible.

Twenty-four Hour Examination: Small intestine empty. Cecum contains small amount. Appendix fairly well filled, is "S" shaped and can not be moved by manipulation. There is a vacuole near the end of the filled portion. Transverse colon contains traces only but appears normal. Lower sigmoid and rectum filled.

Conclusion: Patient has an appendix that is fixed and lies to the inner side of cecum and contains one or more fecal concretions. Patient's condition is probably due to an old chronic appendicitis.

Operation by Dr. Fravel on September 15, 1920, verified by the roentgen ray findings.

This case is too recent to be considered permanently cured but there has been no return of her previous trouble up to present date.

It is by no means intended in this paper to convey the impression that cases of suspected acute appendicitis should be examined roentgenologically. Seldom, if ever, should an acute case be subjected to the manipulation necessary nor is it advisable to attempt to fill an acutely inflamed appendix with any insoluble material such as barium sulphate or bismuth.

Again there are some cases in which the appendix either fails to fill or empties itself so rapidly that no definite impressions can be obtained. In the great majority of children, however, under proper technique, the appendix may be made to fill sufficiently well to give a fairly definite impression of its condition.

From the cases herein reported it seems that we are to conclude:

1. That in our search for causes of recurrent acidosis and other etiologically obscure disorders of early childhood, the possibility of a diseased appendix should be more generally considered.

2. That the absence of pain or tenderness by no means excludes chronic appendicitis.

3. That the study of the gastro-intestinal tract by means of the roentgen rays will often indict the appendix when other means fail.

206-208 *Professional Building.*

THE IMPORTANCE OF EARLY RECOGNITION AND TREATMENT OF BONE AND JOINT INFECTIONS.*

By WILLIAM T. GRAHAM, M. D., Richmond, Va.

The high mortality and frightful disabilities resulting from infections of the bones and joints have led me to read this paper. It should be the aim of every general practitioner, as well as that of the surgeons, to save the lives, shorten the convalescence and limit, as far as possible, the loss of function in these cases. In order that this may be done, it is highly desirable that a diagnosis be made at the earliest possible moment and efficient treatment instituted at once. Many of us have seen cases heal promptly when drained early, while all of us have seen cases that have suppurated over a period of many years. There are many who feel that theoretically acute osteomyelitis should never develop into the chronic form. Rheumatism, growing pains, sprains, and bruises are far too often considered the cause of the trouble in place of the real condition—osteomyelitis. Just such conclusions are responsible for the loss of valuable time and result in much destruction.

Etiology

In infections osteomyelitis, the cause is a pyogenic micro-organism which occurs in the following order as to frequency:—

1. Staphylococcus pyogenes aureus.
2. Staphylococcus pyogenes albus or citrus.
3. Streptococcus.
4. Pneumococcus.
5. Bacillus typhosus.

* Read before the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

Occasionally, other organisms are present giving what is called a mixed infection. In the chronic cases one often finds associated with the original organisms Bacillus fetidus, Bacillus coli communis, and Bacillus pyocyaneus.

Among the predisposing causes, one may mention youth—on account of the undeveloped bones—exhaustion, exposure, trauma, and preceding diseases such as measles, scarlet fever, pneumonia, and typhoid fever.

Pathology

The involvement of the cortex and trabeculae is secondary, since the primary infection is in the medulla. The point most frequently attacked is the diaphysis near the epiphysis.

On account of the Haversian canals to the cortex, abscesses frequently form early beneath the periosteum. Extensive necrosis of the bone often results from pressure. The extent of the destruction and amount of extension is frequently dependent upon the character of the organism and the ability of the bone to resist it.

In the very early stage pus may not be seen in the marrow, but the marrow simply appears infected. However, in most cases operated upon free pus is present. The cortex is at first white and shiny, and, as the case passes to the sub-acute stage, the cortex remains white but has lost its lustre. During the chronic stage the cortex is bare and the appearance varies from a grayish white to a brown or black color.

Symptoms

There is a sudden, pulsating pain in the shaft of the bone near the epiphysis. The pain is most exquisite on account of the resistance offered by the dense cortex and the inability to expand. Local pressure increases the pain.

Until the infection breaks through from the medullary cavity, swelling may be absent. Its presence usually indicates involvement of the surrounding soft tissue.

Frequently the involvement is accompanied by an early chill and a temperature as high as 103 or 104. Delirium is common and, on account of the toxemia, frequently persists a week or more after good drainage has been instituted.

The white count is high.

It is the rule to find an abscess beneath the periosteum or in the soft tissues.

Leading to the diseased bone sinuses may be found discharging pus.

X-ray examination in the very acute stage will not prove helpful but, during the sub-acute and chronic stages, one depends much upon the X-ray findings for the proper conduct of the case.

Prognosis

In every case of extensive osteomyelitis, the prognosis is grave: the acute cases on account of toxemia, and the chronic ones on account of exhaustion and amyloid degeneration.

Whitman, in his Orthopedic Surgery of 1917, reports Guyot's experience in 54 cases of acute osteomyelitis of the upper end of the femur, in all but 7 of which the joint was involved. In this series, the death rate was 60 per cent. In tuberculosis of the bones and joints, one finds the original focus in the epiphysis or the cartilage or the synovial membrane within the joint. Here the onset is much more gradual, the white count not high, and the progress much slower than it is in the cases due to pyogenic infection.

Treatment

Cases of pyogenic origin should be drained promptly, and, if seen within the first forty-eight hours, drill holes will usually suffice. When this is done promptly, it frequently makes secondary operations unnecessary. When cases are seen later than this, it is usually necessary to gutter the shaft by removing a portion of the cortex or even removing it throughout the entire length of the bone, if necessary. Only so much of the marrow as has been destroyed should be removed, since the life of the bone depends upon the marrow and the periosteum. Much mischief may be done by needless sacrifice of the marrow which is sure to result in necrosis of the cortex. In the chronic stage, one aims to keep up good drainage until sequestration occurs and the involucrum is well established. Marrow cavities and sequestrum cavities should be cleansed and packed with gauze. Sub-periosteal resection of bones is permissible where it seems desirable, but it should not be done except in rare instances unless the bone to be removed has a fellow to

act as a splint. In the femur and humerus, the shaft should not be removed until the new bone formation is of sufficient strength not to fracture spontaneously. One should be very careful not to sacrifice uselessly any more of the shaft than is absolutely necessary as such a procedure is certain to result in a great loss of function. In the old destructive cases where much of the saft has been removed, repairs may be done through osteoplastic operations, bone grafts, and the transplantation of one bone for another.

Where the joints are involved they should be fixed to prevent friction and trauma during the early acute stages but, if pus should be found to be present, it should be evacuated at once.

In tuberculosis of the spine, as soon as the diagnosis is made, the patient should be placed on a Bradford frame with the spine hyperextended. This treatment should be carried out for six months to a year, or more, depending upon the progress made. During the ambulatory treatment a well fitting plaster jacket should be worn at first, and should be followed by a suitable back brace.

In tuberculosis of the hip or knee, traction should be employed until the very acute symptoms subside, then a long comfortable plaster which insures complete immobilization should be used. During the ambulatory stage, a Taylor or Bradford hip splint should be used in the hip cases, and a Thomas knee splint should be employed in the knee cases.

In all cases of tuberculosis of the joints and spine, the treatment should be started early, it should be efficient and comfortable, and should be kept up over a long period of time. If abscesses occur, they should be aspirated and sealed, and not drained by an open incision as this is sure to invite a mixed infection and result in long suppuration. At the Maritime Hospital at Berck-sur-mere, in France, where 3,500 to 4,000 patients with tuberculosis of the bones and joints are constantly under care, the surgeons in charge rely entirely upon aspiration, and they say that they feel responsible for every sinus which develops in patients under their care, if the sinus was not present when the patient was received at the hospital.

In patients suffering from pyogenic infection, or tuberculosis of the bones and joints, too high an estimate cannot be placed upon the value of food, fresh air, and the direct rays of the sun, or what is known as heliotherapy. Happy and pleasant surroundings are important, and mental recreation and diversion are of the greatest value in these cases.

Professional Building.

THE TREATMENT OF NEURO-SYPHILIS.

By R. FINLEY GAYLE, JR., M. D., Richmond, Va.

Physician to Tucker Sanatorium; Attending Neurologist to Memorial Hospital; Associate in Neurology, Medical College of Virginia.

The treatment of neuro-syphilis in its various forms often gives extremely satisfactory results. It is a fact that even tabes dorsalis, general paresis, and other forms of parenchymatous syphilis are helped by intelligent treatment. While we do not contend that these degenerative states are cured, we do know that in many cases the distressing symptoms are alleviated and the patient is frequently able to take up his life's work again.

The serum Wassermann has now become a routine in all well regulated offices and clinics and in this way we are able to recognize many luetics, formerly misdiagnosed, who have few symptoms or objective signs which suggest syphilis. On the other hand, however, there are many cases of central nervous syphilis which have a negative blood Wassermann; the physician believing this to be proof positive that the case is not specific, satisfies himself with some other diagnosis. The patient is not benefited and eventually falls into the hands of someone with a more investigative mind, a lumbar puncture is done, the Wassermann on the fluid is found to be positive and treatment is directed along the proper line. The diagnosis of neuro-syphilis is also frequently made in the absence of positive blood and spinal fluid Wassermann. Although the laboratory is a very necessary adjunct, and the help of a good one clinicians can ill afford to minimize, we should not rely solely on the laboratory findings.

When the clinical evidence leads to the diagnosis of syphilis of the central nervous system in spite of negative serology, a small dose of

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* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

salvarsan should be given intravenously as a provocative, the blood being tested from two to four days later. This often gives a positive Wassermann test and the diagnosis is made certain. However, this so-called provocative test is more often negative than positive and even in spite of its being negative, when the symptoms point to syphilitic disease of the central nervous system, anti-syphilitic treatment should be instituted. The salvarsan which is given as a provocative, at times gives the patient some relief and is in itself a therapeutic test. Lumbar puncture should always be done when the case is clinically cerebrospinal lues, either in the presence or absence of a positive serum Wassermann, as the serological, chemical and microscopic analyses should be our guide as to the kind of treatment to institute. Increase in the cell count of the spinal fluid often precedes for sometime the active presence of the disease in the central nervous system.

Nervousness, excitability, irritability, insomnia, headache, paresthesias, convulsive attacks, peripheral nerve and root pains and muscular weakness as complaints, when no very evident etiology is present, should cause one to investigate very thoroughly for syphilis of the central nervous system. Objective signs of unsteadiness of station or gait, altered deep or superficial reflexes, ankle or patella clonus, Babinski, spasticity, atrophies, ataxia or incoordination, speech changes, aphasia, inequality and irregularity of the pupil, loss or sluggishness of the pupillary light reflex, ocular nerve palsies, cranial nerve palsies or weaknesses, mental signs such as altered personality and exaggerated ego, in any combination, should suggest the possibility of luetic involvement of the brain and cord. It is very desirable to recognize the disease early for the hope of recovery is much greater before degenerative changes take place.

Salvarsan is the most active drug in the treatment of syphilis; mercury and the iodides are of great value and their benefits should not be minimized. That which interests us most is the method of administration, the dosage, the frequency of injections and the future handling of the case. Spirochetes are generally active in the brain and spinal cord of syphilis of the central nervous system and, for this reason, treatment should be directed against the organism there. As stated, salvarsan is the drug which has the most active spirocheticidal power and it is important to determine which method of administration—intravenous, intraspinous, or both—should be employed. The Wassermann, the analysis of the spinal fluid, the type of pathology and the clinical symptoms are our most important guides.

The cases of meningo-vascular or neuro-vascular syphilis are generally acute in their onset, show positive blood Wassermann, normal or only slightly increased cell count, usually a negative spinal fluid Wassermann and slight increase of globulin. Clinically, they suggest neuro-syphilis and are very effectively treated with intravenous salvarsan combined with mercury and the iodides. The frequency of administration, subsequent tests and examination will be taken up later. On the other hand, those cases which have exudative or gummatous formations and parenchymatous cell destruction are generally more insidious in their onset, their effect is more lasting and they demand more active, diligent and extensive treatment. These cases should also be observed over longer periods of time. In the parenchymatous form the Wassermann on both blood and spinal fluid is, as a rule, positive. But even in these cases it is frequently negative and the clinical picture with chemical and microscopical examinations of the spinal fluid must guide us; the globulin is increased, the cell count is high, the fluid pressure is increased and the colloidal gold test may show various curves depending upon the type of disease.

Believing that little or no arsenic gained its way to the central nerve tissue, Swift and Ellis, several years ago, devised the method of first treating their patients with intravenous salvarsan and in the course of from one half to an hour later withdrawing from the patient sufficient blood to make 15-20 c. c. of serum. This they inactivated at 56 degrees centigrade for 45 minutes and injected the serum into the patient's spinal canal. The procedure is, no doubt, a good one, but the chief difficulty is determining the amount of arsenic the patient gets into the spinal canal; it is certainly small and by no means constant. A short time later, Ogilvie, then doing investigative work in neuro-syphilis with Swift and Ellis, devised the method of putting a known quantity of

salvarsan in the patient's own blood serum and injecting it into the spinal canal. This seems to be a more logical procedure and certainly gives in our hands better results than the original Swift and Ellis intraspinal treatment. Some other good men do not give salvarsanized serum into the sub-arachnoid space but claim that the withdrawal of the spinal fluid until the canal is drained, from one to two hours after an intravenous administration of salvarsan, causes an increased amount of arsenic to be liberated in contact with the central nervous tissue by means of new spinal fluid. More recently others are employing the method of doing a lumbar puncture, allowing the fluid to enter a glass syringe, putting into this fluid a known quantity of salvarsan and injecting it into the sub-arachnoid space through the puncture needle. As we have not used this method I am not in a position to discuss it.

As stated before, the meningo-vascular type, when the blood alone is positive, is effectively treated with intravenous salvarsan alone but, when the Wassermann is positive in the spinal fluid, intraspinous salvarsan is a great help in effecting a recovery.

In the treatment of neuro-syphilis in which there is definite involvement or destruction of central nervous tissue as shown by clinical evidence, increased globulin, increased cell count, luetic, paretic or tabetic gold curves, and positive Wassermann in blood and spinal fluid, we use a combination of intravenous and intraspinous salvarsan with a drainage of the spinal canal.

Old salvarsan, intravenously, has given better results than neosalvarsan. The night before treatment the patient is instructed to take a cathartic, the day of treatment a light breakfast only is allowed, no lunch is given and no supper if there is the least suspicion of toxic reaction. Should there be any toxic reaction, a few minims of 1-1000 adrenalin chloride solution is given subcutaneously which usually gives relief. The dosage is begun with 0.3 gm. and increased at each dose 0.1 gm. until 0.6 gm. is given. This amount is tolerated by most patients with no reaction. Care should be taken in the preparation of the drug for intravenous use, only freshly distilled water should be used and it is not necessary to use more than 15 c. c. of water to each 0.1 gm. of the drug; the solution should be over neutralized about two drops as this frequently prevents reaction. The preparation should be given at body temperature, the solution should be allowed to run into the vein slowly; it is unnecessary, of course, to mention that no part of the solution should be allowed to get into the adjacent tissues. We have found the gravity method to be the most satisfactory. The drug is administered about every seven days. We have found it is a good rule to give a series of six treatments at the interval of one week, to give the patient a rest of two months at the end of the series and then take a Wassermann. If this Wassermann is found negative, the patient is allowed to go six months, at which time the test is repeated and if still negative he is allowed to go a year. If the Wassermann is again negative, he is allowed to go two years and, if still negative, he is warned to return should there be any resumption of symptoms, to have further tests made every two or three years of his life. However, if at any time on returning for tests, the Wassermann is positive, or partially so, the series of six treatments is repeated and the follow-up system is again used. Should the patient not receive any benefit from the first six treatments after a period of two months' rest, it is advisable to give more salvarsan even in spite of a negative test.

The intraspinous salvarsan is prepared as follows: The blood is drawn into a 50 c. c. glass syringe—this is done by means of the ordinary blood needle—before breakfast, as there is less fat in the blood at this time of day—is put into centrifuge tubes and allowed to cool in an ice box. It is then centrifuged until the serum is clear. 15 to 20 c. c. of the serum is pipetted off into a test tube and the salvarsan in solution is added. The utmost care should be observed in sterilization as there have been reported cases of infectious meningitis following poor technique. The salvarsanized serum is then put into an incubator or hot water bath for 45 minutes, at 56 degrees centigrade. The serum is now ready for injection. Salvarsan is preferable to neosalvarsan as the latter is more likely to undergo chemical change on heating.

The dose of salvarsan in this method is necessarily very small for it is quite irritating to the spinal cord. 0.3 mg. is always well borne at first and the dose can be increased 0.1 mg. at each dose until 0.5 mg. or

0.6 mg. is reached; above this amount the resulting pain reaction is intense, except in unusual circumstances. The intraspinal method of administrating salvarsan can be given as frequently as once a week. The serum at body temperature is injected into the sub-arachnoid space through a Quincke needle. The site selected is the space preferably between the fourth and fifth lumbar vertebrae; the patient is more easily punctured in the recumbent position on the left side. After the puncture is completed, the fluid is withdrawn slowly and allowed to run until the canal is almost completely drained: a 20 c. c. glass syringe with rubber tube attachment is then connected with the needle; the serum is then poured into the syringe and allowed to run in slowly, either by gravity method or slight pressure with the plunger in the syringe. Occasionally, after the injection, the patient has a pain reaction, varying in intensity from discomfort to very excruciating pain down the legs. This should not cause any anxiety, as it is controlled by codein and aspirin and lasts only a few hours at most. Pain following spinal treatment is not the rule in our cases and, when present, seldom occurs after the first treatment.

By some it is believed that the good results of salvarsanized serum are due to the patient's inactivated blood serum rather than to the small quantity of salvarsan. There may be something to this, but the point has never been definitely proven. However, I do know that we are getting very satisfactory results with the method I have mentioned.

In certain cases, with negative blood but positive fluid Wassermann, which have been given intravenous salvarsan medication with no result, we have gotten excellent results with the salvarsanized serum alone.

Potassium iodide in increasing doses and mercury by inunction and mouth are very necessary drugs in the treatment of syphilis. They are given over long periods of time allowing the patient to omit this medication one week in each month to prevent salivation and iodidism. Mercury in solution can be given by intramuscular or intravenous injections but I can see no great advantage over the oral or inunction method. The intramuscular injections are very painful and I do not believe as much of the drug is absorbed as by other means. Mercury has also been given intraspinously but those cases I have followed had very severe pain reaction and little or no benefit was derived from it.

The follow-up system of frequent blood and spinal fluid Wassermann, examinations and subsequent treatment, when necessary, can not be advocated too strongly. The patient, in the beginning, should be warned of the severity of his condition and in certain cases should be given some hope of relief of symptoms, but the fact that it is absolutely necessary for him to be seen and examined can not be impressed too strongly. Some patients, after taking a few treatments, have a relief of their most distressing symptoms and, believing that they are cured, get a sense of false security, discontinue treatment, but generally to their sorrow.

Case I.—Diagnosis: C. S. Lues. Patient gives a positive history of initial infection. About six months before seen by us he had a slight thrombotic attack in which he had a weakness of the right side, difficult gait, slight motor aphasia and was emotionally upset. He had been given eighteen intravenous treatments of salvarsan and showed little improvement. When seen by us his Wassermann on the blood was one plus, spinal fluid four plus, cells increased, globulin increased and colloidal gold reaction showed luetic curve. Speech at that time was normal. He had some spasticity of the right side, increased reflexes, no Babinski, no clonus, reflexes on the left side were diminished. He was irritable and at times mentally confused. He was given a course of intraspinous salvarsan and showed improvement; at the end of this time his blood was again positive as well as his spinal fluid and it was thought best to combine the intraspinous and intravenous treatment with spinal drainage. Up to date he has been given nineteen intraspinous and seventeen intravenous treatments: although his spinal fluid has continued to be positive he has shown great improvement but is not well.

Case II.—Diagnosis: C. S. Lues. Onset of present condition with numbness in left leg, internal squint in right eye, diplopia, shooting pains in the left leg, unsteadiness of gait and speech difficulty. Had been given five intravenous treatments of salvarsan before falling into our hands. When first seen, his blood Wassermann was negative, spinal fluid four plus, cells 30, increased globulin and colloidal gold test showed an atypical luetic curve. His

station and gait were unsteady, difficulty in speech and increased deep reflexes; right pupil fixed, left sluggish, irregular and unequal and objective diplopia. He had eight intraspinous and one intravenous treatment and both blood and spinal fluid Wassermann became negative and remained so for a year, at the end of which time his blood was again negative and spinal fluid two plus. He was given five intravenous and intraspinous treatments at the end of which time his blood and spinal fluid were both negative. The patient has shown very definite improvement and now has no complaints except occasional numbness in the legs.

Case III.—Diagnosis: General Paresis. Patient gave a positive history of luetic infection. He had been given five intravenous salvarsans recently, no lumbar puncture had been done; blood Wassermann was said to be four plus; patient showed grandiose ideas, exaggerated ego and a sense of well being; was very emotional and nervous and showed increased psychomotor activity; station unsteady, knee jerks not obtained, slight lower ataxia, tremors of the face and tongue, slurring speech and sluggish pupils. His spinal fluid was negative, he had 10 cells, increased globulin, increased spinal pressure and typical paretic colloidal gold curve. In spite of the negative spinal fluid Wassermann, the patient was so typical of paresis clinically that he was treated with salvarsan; an attempt was made to combine the intravenous treatment but he reacted so badly that only a small amount could be given in the vein. He was given six intraspinous treatments and showed marked improvement. At the end of this series he returned and his blood Wassermann was two plus and spinal fluid negative. He was advised to take six more vein and spine treatments; these were given and he again showed further improvement. He returned again in two months and gave a negative blood and spinal fluid Wassermann, negative cell count and negative globulin; he was entirely normal mentally and able to resume his duties as general officer of a large railroad.

Case IV.—Diagnosis: C. S. Lues. Patient gives a history of primary lesion. He complained of headache, vertigo, tinnitus and deafness in the right ear, numbness in the left foot and his station was unsteady and knee jerks diminished. He had slight upper ataxia; pupils unequal, irregular and reacted only fairly well to light. There was slight sixth nerve paresis and shooting pains in legs. The blood and fluid Wassermann were four plus; spinal fluid showed 140 cells and four plus globulin. Patient was given two series of six treatments and has had negative blood and spinal fluid for a year and a half; clinically he is well.

Case V.—Diagnosis: Tabes Dorsalis. A female, age 38 with a history of one miscarriage. Complained of difficulty in gait, vomiting spells, after severe abdominal cramps, occurring every few days; numbness of the bottom of the feet, pitching forward on leaning over, girdle sensation and dizziness. Examination showed station unsteady, gait ataxic, absent knee, elbow and Achilles jerks, some upper and marked lower ataxia, pupils unequal, irregular and of the Argyll-Robertson type. Blood and spinal fluid Wassermann were both negative but, after one intravenous and intraspinous treatment, spinal fluid became four plus; patient has been given one series of vein and spine treatments and showed considerable improvement in that she is almost entirely free of her pain, has had no gastric crises and is able to walk better. This patient has had two abdominal operations and it is very probable that these were done for the root pains of tabes rather than any abdominal condition, as the operations gave her no relief.

Case VI.—Diagnosis: C. S. Lues. Onset of present condition two years ago with nervousness. Patient has two living children and has had one miscarriage. On admission she complained of nervousness, depression and negativism; deep reflexes were exaggerated, pupils sluggish, blood Wassermann three plus, spinal fluid Wassermann four plus, increased globulin, increased cells and increased pressure. A series of six intravenous and intraspinous treatments was given and patient showed marked improvement; she was less depressed and nervous and her mental symptoms cleared up. The patient returned for a second series of treatments at which time her blood and spinal fluid were both four plus; she was given a second series of treatments and since she has remained clinically normal. She is to return for further treatment if necessary.

Case VII.—Diagnosis: Tabes Dorsalis. Patient gives a positive history of lues, onset of present complaints 15 years ago with back-

ache, nausea, difficulty in voiding, gastric crises, difficult gait and paresthesias in the arms and legs. Examination revealed unsteady station, ataxic gait, upper ataxia, absent knee jerks, pupils sluggish and unequal and transient diplopia. Blood and spinal fluid Wassermann were four plus. Before being seen by us he had been given six intravenous treatments with no result: intraspinous treatment given by us relieved his pains and gastric crises, otherwise there was no change.

Case VIII.—Diagnosis: C. S. Lues. Patient complained of headache, nervousness, vomiting and unconscious convulsive attacks. He had aphasia and paresthesias. Examination showed station unsteady, Babinski and ankle clonus on the right, knee jerks active, pupils irregular and sluggish. His blood Wassermann was plus minus, spinal fluid four plus, 40 cells and plus globulin. He was given six intravenous and intraspinous treatments and improved in every respect. He returned at the end of two months and his blood and spinal fluid were both four plus. He was given a second series of six treatments, since which he continues well clinically.

Case IX.—Diagnosis: General Paresis. Patient gave a positive history of initial infection. He has several healthy children, his wife has had no miscarriages. He suddenly, with no prodromal symptoms, became violent, mentally confused, had grandiose ideas and it was necessary to confine him in a mental sanatorium. After three intraspinous treatments, the patient became quiet and rational. At the onset his blood Wassermann was plus minus and the spinal fluid was negative; the colloidal gold curve was paretic. He has been given three series of intravenous and intraspinous treatments and is now clinically and serologically well, however, we are not sure that he will not have a return of symptoms.

212 *West Franklin Street.*

Discussion

Dr. J. A. Strickland, Norfolk:—I wish to endorse what Dr. Gayle has said, and compliment him most highly for the splendid paper and the way in which he presented it to the Society.

I would like to emphasize the importance of patients returning for treatment, and feel that we who are treating neuro-syphillis should impress upon these patients the seriousness of such a malady.

In treating these cases I feel that the salvarsan should be gotten to the central nervous system in the most direct way, and with this I wish to advocate two methods, which I have used and found beneficial. That is draining the spinal canal of 20 to 30 c.c. of fluid and then injecting the same amount of salvarsanized serum through the same needle into the canal. The other is to drain off all fluid just after the salvarsan has been given; this method alone has proven very beneficial, and is simple and easy to do. There is one disadvantage to the Swift-Ellis method; many of those patients treated in this manner complain of severe pains in the back and lower limbs for several hours after the treatment is given. I believe the same results can be obtained by spinal drainage with less trouble and more comfort to the patient.

Dr. Thos. W. Murrell, Richmond:—At a meeting of the American Medical Association in New York, I heard the method of intraspinal treatment severely handled. In the discussion, Dr. John Fordyce stated that he was not particularly optimistic as to the treatment of such cases, but believed that spinal infection usually took place at the time of blood infection and that treatment at this time was prophylactic of nerve condition. Neuro-syphilis is a hard thing for a man to work with who is not particularly interested in neurology. The thing that bothers me most is whether a patient is improving when his sera improves and yet does not show clinic improvement. I have discussed this with a number of men and was impressed by a remark of Dr. Hall's, who stated that a relapsed case, which had received spinal treatment, was worse off than one who had not received it. I would like to ask Dr. Gayle if he agrees with this.

This paper is on a method of treatment. I have used all three methods and cannot say that the pain is any worse in one or the other. In the use of salvarsan direct in the spinal cord in a series of ten cases, I have only one who complained of much pain. What is interesting to me now are two cases of spinal syphilis, who cannot stand the administration of salvarsan, one patient being critically ill after a moderate dose. Dr. Higgins informs me that spinal drainage following mercury is practiced at Johns Hopkins in such cases.

Dr. J. M. Ladd, Washington, D. C.:—The question of the Swift-Ellis method (serum—salvarsanized serum) in treating syphilis is a large one and I believe we have not yet correlated our clinical results to such a degree that we can state the relative value of its therapeusis. I believe its main and only indication is in those cases of tabes, as it tends to attack the inflammatory seat around the posterior roots.

Do we not establish a "vicious circle" by intraspinal injections? In mind, if not in physiology, I believe we do. Can the medication attack diseased parenchymatous tissue unless it circulates in reverse direction of the spinal fluid?

I would like to know the spinal fluid reactions in Cases Nos. 3 and 4, and also in 9 and 10, before and after treatment.

Dr. Tom A. Williams, Washington, D. C.—The alleged specificity of intraspinal therapy is poorly founded. In all cases, intravenous medication is also given and, in the great majority of cases, this alone suffices. Any additional advantage of spinal therapy is due to the non-specific irritation of the meninges producing a hyperæmia of the deeper layers, which facilitates the absorbtion of exudates, even where no treponemicide is given.

The resistant case occurs but is not confined to neural syphilis. Leucoplakia, hepatitis, osteitis, arteritis, gummata, are sometimes as refractory. Sometimes after an interval of cessation, a neural case will quickly respond to renewed tréatment; and this is true also of the disease elsewhere than in the nervous system. Hence, as I was the first to point out (Alienist and Neurologist, 1914), intraspinal therapy is based upon false premises, and, as Sachs and his associates have shown upon a very much larger material than my own, is almost negligible as a therapeutic factor in the treatment of neuro-syphilis of any kind. The more judicial minded men have never systematically used it, and most of the others have now ceased to do so, as they have now thoroughly grasped that they are not dealing with a serositis, but with a disease of the lymphatics, which can be reached only through the blood stream.

Dr. Gayle, Richmond, closing discussion:—In answer to Dr. Strickland, I will say that we get little or no pain reaction from the intraspinous method and I feel that, if it is properly prepared, there is little chance for this distressing aftermath Probably the reason that his cases have pain is that he uses neosalvarsan which is more unstable and probably undergoes chemical changes when the serum is inactivated.

Dr. Murrell asked the question whether or not general paretics who are benefited by treatment and later have a relapse are not worse. I am unable to say definitely, but our experience has been that they are not worse. We have had several cases who showed improvement upon treatment and later had a return of symptoms, but we did not feel that they were worse the second time than formerly. Dr. Murrell brought out the fact that he had one patient who apparently had an idiosyncrasy for salvarsan. We have had several of these and found in the treatment of one that putting a few drops of 1-1000 of adrenalin chloride in the solution during the administration caused the patient to have no reaction. We have had patients who had a great deal of intravenous salvarsan without any relief but in certain of these cases intraspinous treatment alone helped them considerably.

In answer to Dr. Ladd I may have omitted giving the serological findings in one or two cases of paresis in reading this paper. One had previously a negative blood Wassermann, but after treatment it became positive. The other case had a one plus Wassermann previously and became negative on treatment. I am unable to explain just why there should be any beneficial results from the intraspinous form of salvarsan, but I do know that we are getting results from the combined method rather than the single one.

A PEDIATRIC REVIEW WHILE DOING POSTGRADUATE WORK THIS SUMMER.*

By S. D. HATFIELD, M. D., Iaeger, West Va.

It has been my intention to specialize in Pediatrics, and this branch of my profession, appealing to me as it does, I have, at every opportunity, given the subject most careful attention. This announcemnt is not effective while serving my clientele in this field, but as many of you are well acquainted with the fact, we must practice all the many branches of our profession while doing the class of work that the most of us are engaged in at the present day.

To my mind there is no subject that presents itself to the physician when engaged in practice of medicine and surgery, that is so very attractive and none so satisfactory, as that of Pediatrics. My greatest ambition has been, therefore, to master the fancy of my ideal and at some date in my professional life settle down where I can continue the practice among infants, children, and the youth of that community. It is here the professional man can lend his influence for molding the character, the physical being that is to be the citizenship of tomorrow. It is here that he can sow seed, that will at the harvest time yield fruit, in the form of more healthy men and women, and thereby serve humanity best.

The citizenship of this great country, its low grade of physical fitness, found at the time of the call to that patriotic service when our manhood and physical qualifications were at their greatest demand, was unfortunately a reflection on a nation so progressive as ours. How are we to overcome this unfortunate condition? We must do it by beginning with the great aim to co-operate with our National, State, and other progressive organizations, who have already assumed the task and are striving with all the means and measures at their command to educate, to spread the propaganda against the most deadly enemy of our country, the problem of Venereal Infection. The logical time to begin to reform mankind is when he is about to become a husband, a father; she a wife or mother, and thereby safeguard the unborn of the land. The public has learned one great lesson from the experience of our boys in the past called to arms; that each person owes a duty to humanity to aid to overcome the spread of venereal disease, which has been the cause of the larger per cent. of the blind, the mute, the otherwise physically handicapped ones that fill the many institutions of our country at this day. More attention to better breeding of human beings should be the aim of every father and every mother

* Read before the Tazewell County Medical Society, August, 1920.

and it is the plain duty of the physician to advise and educate those who come for his service. The man who finds himself content to let things relative to the problem of venereal disease drift on and on, as it has been the custom of our profession in the past, will find himself at some time in the near future, a member of the minority who lacks energy to accomplish his mission to best serve the public and he will thereby be classed a failure in his profession.

We cannot help but take notice of the many conditions which we learn by careful study to have resulted in maiming this child, in producing another with a low grade mentality, and causing much misery, suffering, and a great loss of ability, usefulness and happiness in the world, to say nothing of the immense financial loss in the one small direction of financing the many institutions for the many persons, who are mentally and physically unfit for any service to humanity, but who are an expense and a burden to society in all its phases.

Those of our profession who have not grasped the importance of a physician of the new era, to be guardian of the health and physical and mental qualifications of the future generation, so far as it affects his domain, are sadly sleeping upon the "Pillow of Opportunity" to render a service never before rendered by the profession in history. Things have changed most wonderfully. Men are thinking in a new way, they are doing things in every vocation so vastly different, that it is not possible for the average mind to grasp the idea until the opportunity may be lost. Keeping abreast of the times, familiarizing ourselves with the trend of the profession to the newer things, accepting the commission to become teachers, rather than healers, and lending our efforts to stabilize things as much as it will be possible for you or I to do; these are a few of the many professional obligations to humanity. It is the time in your and my life to make history that will be interesting matter for the generations to come.

My work in Chicago consisted largely of clinical study of cases in the outdoor department, the wards and in the infectious and contagious annex of Cook County Hospital, Sarah Morris Memorial, the Children's Memorial and the Mary Thompson Hospital. At Cook County Hospital I had the aid of the house physician and that of one of Chicago's leading pediatricians, who assisted me in every particular to see and study many cases. Among some of the cases studied at Cook County Hospital, I will discuss with you in a brief way some of the points that might be of interest to you, and will serve me well to refresh my memory in again reviewing my notes on them.

A mistake in giving medicines. A child or infant six months of age was given a teaspoonful of camphorated oil for castor oil. The result—convulsions, temperature 106 F.; acute nephritis followed.

An infant 3 years of age with gangrenous toes and a gangrenous heel. The many causes were discussed — intermittent claudication, Raynaud's disease, diabetes and frostbite. It was probably frostbite.

A case of impetigo contagiosa—nothing new about it except the importance of isolating the little patient and treating with soothing antiseptic applications. Patient soon recovers with the application of tr. iodine and then my old favorite, Unna's paste application. This will cure everyone in a few days.

I saw many types of eczema on all the various cutaneous surfaces of the body. The management in the Sarah Morris Memorial Hospital consisted in feeding these cases with a large percent of sugar, application of splints, gloves, olive oil dressing preceding the usual Lassar's paste, less the salicylic acid. A Cook County Hospital, oil of Cade 1% cum zinc oxide and reduction of starches.

A very interesting topic is the "Flu" complications. They are so numerous and so very common with us yet, that we must admit that the Lord was good to the doctors. It has made it possible for some of us to keep busy when we might have otherwise been looking for something to employ our time.

The point of interest which I hope will elicit discussion from the surgeons present is this fact noted in the Cook County Hospital; the staff here had had a very unsatisfactory experience with influenza empyema in children. They had admitted a large number of cases in children and infants and had in the usual way resected a rib and established a very free drainage in all cases, as we have been taught and as the staff thought proper, but without an exception they lost every case operated on in this manner. I saw one case in

particular, many others they told me about, in which they had aspirated the pus and re-aspirated it every few days and treated the little patients in a general way and without an exception they all lived. The case I saw apparently was doing well. The pus, as they explained, soon ceased to form and the little patients would begin to eat and by the use of tonics they would get home within two to four weeks. Am I correct in the statement that the trend of the surgical profession today is to do fewer rib resections and more drainages through the intercostal space in empyema? I believe this idea gained favor among our army surgeons after many sad experiences with the influenza empyemas seen in our cantonments, etc.

Many other complications of influenza filled the Pediatric department of the many institutions that I visited and were found in the above named hospitals as well. Among these, recurrent coryza, recurrent fevers of no apparent cause, bronchitis, pneumonia, otitis media, a large number of kidney cases and a great many heart cases, and these especially in the adults.

A child was presented for examination and treatment who was a very pronounced case of muscular dystrophy. It had had pneumonia and the interne thought that he had found fluid in the chest. Many of us looked the case over carefully and each of us was uncertain about there being fluid. The staff physician looked at the child and made a physical examination and stated that there was fluid present. So he tapped and got nothing. The child was fat and flabby and gave many of the signs of fluid in a rather uncertain and doubting form, but it has been my experience if the signs are not reasonably positive, you have nothing there. Especially is this true in a child.

The question came up, When should you tap the chest? When would you? What signs would you expect to have and when would you tap a child's chest?

In making a study of malnutrition, an idea was given by my friend and instructor, Dr. Julius P. Hess. He likes to call them "Disturbed Metabolic Balance." In the history of the patient, it is true that we find by study of each individual case a history of excessive food given, a too frequent period or interval in which the food is given—thus a quantitative metabolic balance. Further, we find improper foods given, improperly prepared food and thus a qualitative metabolic balance. Dr. Hess is very scientific in his feeding of babies. He has formulas for every baby, and each is fed in accordance with his body weight and the caloric value of the food given. He is having wonderful success in their management.

I was interested in the cases which were overfed and still lost weight. That is, they were given more caloric value of food than their body weight called for and yet they lost weight. This condition Hess termed peritoxical reaction. Time and space will not permit me to discuss and name with you the many proprietary foods used and the idea for their use in the various institutions of Chicago.

Cook County Hospital has two historic wards. They are known as 41 and 42. In ward 41 we found the many types of luetic infection and the various types of the skin, nerve, bone, eye and visceral lesions as recorded by many authors. These little patients are treated in the same way we treat the disease in the adult. They give salvarsan and its allied products intravenously, usually through the anterior fontanelle into the great longitudinal sinus. The mixed treatment is given as in the adult.

In ward 42 we find a great many female children who are subjects of gonorrhœal vaginitis. No male children are in this ward. These cases are most carefully isolated. Every female child gaining entrance into Cook County Hospital gets a bacteriological examination made of the vaginal secretion and this is repeated monthly as long as she stays in the institution. The house physician told me that almost every female child in the hospital came infected or became infected before they were in the hospital a month; therefore, the rigid ruling for the microscopical examination of the vaginal secretions monthly.

I had a splendid opportunity to see all types of the scarlet fever lesion, many cases of measles of the two forms, erysipelas galore, plenty of chicken-pox, cerebro-spinal meningitis and small-pox. I found that it was not easy to differentiate by the lesion alone, in some types of the scarlet fever lesion of the skin, and the liberty measles. The interne laid much stress on the leucocytosis in scarlet fever, while in measles and erysipelas a leucopenia was found. The serum from convalescing

scarlet fever patients was used in the treatment of those very ill with the disease. They reported good results. Direct transfusion of blood was done in hæmorrhages in the new born and in the hæmophiliac.

In diphtheria, they administer the presensitization test; that is they give the Schick test as a routine. If the patient after one hour does not show some sensitization to the serum, then they give the dose ranging from 3,000 to 50,000 units. They give it like I do in every case of suspicious throat and make the culture afterward.

In chicken-pox it was found necessary to enclose the patients in a glass cage and not permit the air from the room or cell to mingle with the other air in the wards, otherwise chicken-pox would spread to every little patient in the wards.

I was interested in their method of the treatment of erysipelas. By the side of the bed of each patient they had a small pan containing a cake of ice and a large piece of gauze, or similar material and every twenty minutes the nurse removed one cloth and put it into the ice water while she put the one lying in the water to the patient's erysipelas wound. This was about all the local treatment they were given. The cases all recovered, so they advised, with no or few complications. The doctor spoke of their abortive treatment in erysipelas. This consisted of painting the area when it first started with tr. iodine and then painting it over with flexible collodion. This, he explained, was thought to adhere so closely to the skin that it made it impossible for the disease to spread further on that account.

The tornado which swept over Chicago and many cities of the west, the middle west and east, just preceded my arrival at the city. I found the place a mass of ruins and Cook County Hospital filled with the injured. In passing through the fracture ward, I noted with interest the method used in putting up the fractures. The arm or leg was suspended to an object over the bed, thus putting the limb or extremity up at right angles to the body. It was nicely suspended and traction made by the weight of the body. The fracture beds were arranged with the cross beams and a great many tornado victims were enjoying the position as was worked out by some of the army staff.

Many local applications are used in the treatment of burns, and we find as many different remedies used as there are different institutions in the country. At Cook County Hospital I had my attention directed to a comparatively new method which they claimed to be the best of all in modern surgery. It consisted of painting the skin surface which had been burned to the first, second or third degree, with a 15% argyrol solution, then keeping the little patients pinned up in cribs with sheets fastened very closely about them. Underneath these one or more electric lights were kept burning. They claimed splendid results for this management of their burns.

I saw a number of interesting neurological cases. I had an opportunity to see several cases of "Little's Disease," or birth palsy, a few cases of muscular dystrophy, as well as many types of defective mentality.

I give an idea that might be worth something to you in the matter of time required to keep the following infectious diseases under quarantine: Scarlet fever is kept in 28 days, diphtheria and erysipelas are each kept under observation and isolation 21 days, chicken-pox 21 days, while measles may be released within 10 days and mumps in about 18 days.

Professor Abt is a very fine Hebrew gentleman and takes much interest in the men seeking to get the experience of a seemingly unlimited clinical supply at Sarah Morris Memorial. He has a staff of young Hebrew physicians that follow him through the wards and he has each of them study some particular case and he takes his seat with the postgraduate men and has this young fellow give his result of the study of the case and then exemplify it to the men. These young fellows are well trained and this man is doing lots of clinical work and a great good for the men of his race as well as any gentiles that may be interested.

The Sarah Morris Memorial is a very modern institution and it has many more of the modern improvements than most other institutions noted in Chicago.

It is worth while for you to go to the Mary Thompson Hospital and see them use their "Twilight Sleep" in obstetrics. I saw a number of these cases delivered under the influence of twilight sleep, and noted effect upon the child: I also talked to a number of mothers who had been delivered under its influence, and I want to say this that if you

get one of those patients in your practice, you had better know how to administer twilight sleep, or else some one will get the case who does give it. They tell me it is simply wonderful. All the mothers, and some of them had given birth to as many as three children while under the influence of twilight sleep, say that they positively knew nothing about it until some time after it was all over with.

A lady interne in the above named institution told me that she came into the institution prejudiced against the use of twilight sleep in obstetrics, but had been fully converted to its use. She told me that, out of 200 deliveries that she had attended, she had not seen a bad result. She had never seen a blue baby, or a still born baby. She thought that this phase of the matter was a coincident and that it so happened to not have any particular complications in the series she had seen. However, she was very enthusiastic over the use of the drug in obstetrics. I asked who the patients were who came to Mary Thompson for this form of delivery and she said the greater number were among physicians' wives, druggists' wives, and wives of men who had knowledge of the most progressive things used by our profession. I said, why do the other institutions of the city say nothing about twilight sleep? She replied that in her opinion men were more or less careless about the welfare of their patients, and as a rule inconsiderate of the best interest and comfort of their female patients. She said that women, knowing the torture and awful pangs of childbirth, were more willing to do whatever they could to make it as easy and as near painless a process as it is possible for one to do. The ideal remedy is in twilight sleep she added.

Dr. Bertha Van Hoosen does major operations under the influence of twilight sleep.

I had an opportunity to assist in the spinal puncture, the withdrawal of the spinal fluid, and to inject the anti-meningococcic serum of Mulford in a few cases of cerebro-spinal meningitis. We made the injections daily for several days, or until the fluid returned clear, and repeated when the spinal fluid became turbid again. One of our cases presented a very beautiful anaphylactic reaction to the serum. In a very few minutes he got up an œdema of the eyelids, the lips, and erythema over all the skin surface. He was very restless and seemed to have high temperature. All the symptoms very promptly disappeared on the hypodermic administration of adrenalin chloride.

From Professor Julius P. Hess, I got the idea to look for syphilis or tuberculosis in every infant and child, until you were more than satisfied that neither existed, by having exhausted every measure and every means at your command to prove that they were not present in the case. Then look for the real trouble. This is a splendid idea and will keep one on the alert so that a very few cases will become puzzling to the diagnostician. I had practised this unconsciously in the past, but I keep it before me in all my cases since my pleasant study with and under the tutorship of Professor Hess.

I want to close this paper and leave it open with this question to each of you. When is syphilis cured?

"A physician may give his patient a certificate of cure of syphilis, provided two years have elapsed from the time of the initial lesion, and the patient shall have undergone a course of treatment extending over at least twelve months, after the termination of which there have been no manifestations of the disease for three months; and a specimen of the patient's blood shall have shown a negative Wassermann reaction, the sample to have been taken at least forty-eight hours after the administration of a dose of salvarsan or its allied products or substitutes."

PERSONAL OBSERVATION OF THE EARLY, INTERMEDIATE, AND LATE TREATMENT OF ONE THOUSAND CASES OF INFANTILE PARALYSIS FROM AN ORTHOPÆDIC SURGEON'S VIEWPOINT.*

By ALONZO MYERS, M. D., Charlotte, N. C.

The problem of the treatment of infantile paralysis is best learned by observations of neglect and the results of treatment as observed during a large dispensary service in the city hospitals, particularly by those making a specialty of orthopædic conditions.

In my service at the New York Orthopædic Dispensary and Hospital, and during visits to Johns Hopkins University at Baltimore, the University of Pennsylvania at Philadelphia,

* Read before the Tri-State Medical Association of the Carolinas and Virginia, at Charlotte, N. C., February, 1920.

Harvard University at Boston, and during my thirty-three months of war surgery on the orthopædic services of the French hospitals while associated with Dr. Jos. A. Blake in Paris. I have observed over 1,000 cases of infantile paralysis in its various stages—some that had received no treatment, others that had had interrupted treatment, and those that had had careful treatment over a long period.

I shall not give a tabulated list of the different regions paralyzed, but rather a general resume of patients as they come to hospitals for treatment. These cases as they go from one dispensary to another become so anxious, they are prone to accept suggestions and advice from either the laity or the profession, and are too willing to try anything with the hope of cure. Unfortunately, many physicians offer bright hope of cure with electricity and the orthopædic surgeon sees the horrible results in deformity and disability that may have been prevented by absolute rest.

In the early or acute stages as seen during the 1916 epidemic in New York City, the best results were obtained by immobilization, either with plaster-of-Paris or braces, and rest in bed. After the painful stage is past, general massage and muscle training is started, and this must be done under the absolute direction and supervision of the orthopædic surgeon. Over-stretching muscles that are weakened but are not paralyzed must be carefully guarded against. These are the muscles that are reported as cured paralyzed muscles, but in reality were only weakened muscles. Every muscle is essential in reconstruction, therefore every precaution must be taken toward this end.

When the period of immobilization has passed and all deformities have been corrected, braces are indicated to hold in the corrected position. This period varies, and from six months to a year should elapse before strain, such as weight-bearing or over-zealous exercises, are allowed, and the patient should be carefully watched for an indefinite period.

In the intermediate stage, some cases have been neglected, others poorly treated, and here is where we see the deformities of infantile paralysis either from neglect or ignorance. Correction and braces are the procedures, operating when the deformity cannot be overcome with stretching under general anesthesia. Slight contractions may be corrected by stretching, while more extensive contractions require tendon lengthening and tendon transplanting.

In the flail joints and the deformities due to the stretched ligaments and disturbed bony relations, we resort to immobilization by various methods, as the arthrodæsis of Jones and Davis in the foot, Myers in the knee (using the patella wedge), osteoplasty of the spine after Hibbs. Flail hips are most unusual, I having seen one only in a thousand cases; an arthrodæsis, according to Albee, will suffice here. When all deformities have been corrected, it is of prime importance to hold them with braces and of secondary, if not of equal, importance to begin muscle training. All cases should receive massage daily and this should be followed by muscle training. Complete knowledge of anatomy and physiology is necessary to obtain an accurate diagnosis before outlining the muscle training exercises.

In the late stage, when atrophy is present and marked deformity due to the constant stretching of the unparalyzed muscle, massage and muscle training are particularly important, since improvement has been noted in cases after thirty-six years' duration, as reported by Lovett of Boston, and as I have observed in my dispensary treatment, where patients have wandered from one dispensary and clinic to another over long periods, after which systematic massage and muscle training resulted in marked improvement, both functionally and æsthetically.

The desired results and treatment of infantile paralysis as detailed in this paper may be summarized as follows:

First: In the acute stage, immobilization either with plaster or braces, rest in bed, and active treatment after tenderness has disappeared.

Second: Massage and muscle training.

Third: Stretching, an operative correction of deformity, followed by the application of braces.

Fourth: Constant supervision and attention over a long period of time.

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EXPERIENCE OF A DIRECTOR IN A FIELD HOSPITAL IN THE A. E. F.

By ISRAEL BROWN, M. D., Norfolk, Va.

We landed in England in the afternoon and marched through the streets of Liverpool from the docks to the railroad station. We entrained for Winchester and remained about three days at a rest camp about three miles from the town. Winchester, the birthplace of Sir Walter Raleigh, was a picturesque university town, containing a cathedral, the castle with the original table of the Knights of the Round Table and Roman ruins. Sunday afternoon we entrained for Southampton, arriving at two, and got a very good dinner in this city. At seven, we embarked to cross the Channel, and were packed in a small steamer, The King Edward, 1,000 of us in space for 300. It was a beautiful trip out of the mouth of the river, with the cities and towns on the coast and the beautiful islands in view until darkness, about 9 p. m. Then everybody was ordered below to bed except guards. No smoking or lights of any kind were allowed and the boat, accompanied by the convoy of two torpedo boats, speeded up. It was very rough and the floor space occupied by the men was slopping over with partly digested corn beef, etc. About eleven o'clock, the whistle uttered a shriek and the boat stopped and was said to have narrowly escaped collision with a torpedo boat. This stop, anyway, was a relief from the speed and ronghness. While I held my own, the trip was very unpleasant and, when our vessel stopped at one a. m. in the harbor of Cherbourg, I went below to get a little sleep, crawling under a bench in a space on the floor just evacuated by one of the medical officers. I enjoyed this for about three hours, when we debarked at the port. We marched about three miles out of town to a rest camp, passing a Hindoo camp on the way. Here we were introduced to the floored English pyramidal tent and afternoon tea. We really enjoyed the bread, butter and tea, as we found out that the pièce de résistance at lunch had been horse meat hash.

After three days here, we went away very secretly for our destination. Our troop train averaged about ten miles an hour and passed through a beautifully cultivated country. After three days of living on hard tack, corn willy, and jam, we arrived at our destination, with always the extra miles to march away from the station. We never got off the train at our stopping place but always had to march about nine miles to get there.

Arriving at Fontaine at 9 p. m., we got to sleep on a pile of hay at one o'clock. The night was cold and the hay dusty. At 4 p. m. we were told to get away before day because, if seen during daylight hours, we would be bombed. We left for our destination about 5 o'clock and reached there at 3 p. m. exhausted, having had neither breakfast nor dinner, but managed to refresh ourselves with a bath in a mountain stream, a late dinner and a good night's sleep. The men used their shelter tents on a green pasture. This little valley, surrounded by high green hills, was one of the prettiest spots to behold, a mountain stream cutting it in half. On our march to this place, we had our first sight of hostile aeroplanes being fired upon by anti-air craft guns; a puff, an explosion, a white smoke moon in the wake of the aeroplane, followed by another and yet another, so that a milky way, bending here and there, was formed.

Here after two days, the ambulance companies were furnished ambulances and began to function, evacuating for a day or two to the French hospitals, until ours were established. We were near the Swiss border, our nearest large town being Belfort. Orders were received for the field hospitals to establish and function, one at La Chapelle with the French, one at Romagny, taking over a French hospital and running it as a gas hospital; one at Chevannes les Grandes, a French hospital in a hunting lodge; the fourth at Massevaux, formerly Munsterkirch in Germany, using the high school there. Our headquarters were now moved to Dennis nearer the field of action; from here I could make my daily rounds of the hospitals. The whole country around here was very pretty, and plums and apples could be obtained. I had some very pleasant trips in a motor cycle side car covering about fifty miles a day visiting the different hospitals. It was now decided we were covering too much space for one division, so our front was narrowed, the hospital at Massevaux moving down to Montreux Jeune, where they established a

medical hospital; the hospital at La Chapelle moving to Bellmagny into a convent and orphange with extra hospital buildings. While shells would very frequently fly over this hospital, it was never struck, though only about a mile and a half from the trenches. Some of the barrack hospital wards at La Chapelle were blown down by shells after we evacuated them. This hospital was in the Gas Alert zone.

As splendid auto maps of the country were easily obtainable we had no difficulty in finding our way over the splendid roads. The medical hospital carried cases of flu, pneumonia, mumps, shell shock, etc. We did not evacuate cases unless they could not be returned to duty for some time to come. Two of the other hospitals were surgical, receiving the wounded from raids, snipers, etc. We also had a branch gas hospital at Retzwiler, making 5 hospitals (nearly 5,000 beds). We would usually receive an order that Captain so and so with a number of men would make a raid at H. day, zero hour, a later message giving day and hour, which was usually at 5 a. m. The nearest hospital would be ready to receive the patients arriving about 8 a. m. Then the enemy would put across a raid of which we would have no cognizance until the wounded began to arrive. We were always ready as we had few patients, good officers and a splendidly trained personnel always on hand. The men were not allowed to visit o side of their own billeting area, training was still kept up and there was no where to go. Here the surgical cases consisted of bullet and high explosive shell wounds, as we received them in a few hours, practically always less than eight debridement and suture was the rule. The results were good, about 85 per cent. union; there would be two or three raids a week besides accidents. Every clear day hostile areoplanes would come over to be fired at by anti-aircraft guns and our chief danger would be from the falling shells, coming down with a whistling sound and piercing the ground several inches, or an unexploded one for three feet. The safest place at this time is to hug a tree keeping mighty close to it. I learned this from a French officer, when I tried to dodge elsewhere. Here we saw several aeroplane fights with enemy planes brought down. After we had been here in Alsace a while, the cannonading became more frequent, artillery began to arrive in our area, aeroplanes were out oftener, and it looked as if we were going to have an attack. I received orders here, where and how to fall back with each hospital in case of a withdrawl. We began to have bright moonlight nights. The Hun aeroplanes would try to bomb the railroad stations and the canal, and what a loud noise those exploding bombs would make!

Our hospitals continued to operate in this almost ideal manner and things were pleasant. We had daily visits from hostile air ships which we now could recognize by the motor. Our headquarters were now moved in from Denny to Chevannes le Grand, first evacuating Denny for the French and moving to Danjoutin a suburb of Belfort. Belfort had been bombed 250 times during the war with 500 aerial alarms. While at Danjoutin, with good billets, a French Algerian division moved in. This was one of the greatly decorated troops.

A Hun aeroplane flew over the part of the city where I was visitng, firing its machine gun down the road. I stood it a while, but as my neighbors sought cover, needless to say I did likewise. Now the moonlight nights arrived, the large guns began to fire more frequently and aviators would fly over at night about twelve o'clock, to observe the shots. The shrill whistle of the shells followed by the loud explosion and the anti-aircraft guns booming, was like a bedlam overhead, especially as the aviator flew low, just above the church steeple. Anti-aircraft guns shot at an angle, the shells bursting just over our heads, and the aircraft was so low that it was fired at by sentries with automatics. It was really an exciting hour in the middle of the night. An hour later there was a call for ambulances, one shell having hit in the middle of a group of barracks buildings, killing nine and wounding twenty-one. We had a busy day operating at the Chevannes hospital the next morning, between operations watching aeroplane battles and dodging anti-aircraft shells.

Cannonading was now increasing in intensity, guns and tanks were coming up, refugees were coming down, aeroplanes were very active and new orders were issued in regard to falling back, with secret orders to move in four days. Another call for ambulances was

received, following a night gas attack of over two thousand shells in a limited area of woods, presumed to be a projector attack. We had nearly 500 casualties in all stages, from mustard and phosgene gas. The Romagny hospital was busy receiving, bathing and treating these patients. The mustard gas patients had what you would expect from an irritant or burning substance. At autopsy they showed the effects of burns in the respiratory system, a cast of the larynx and bronchial tubes, the smaller bronchioles being filled by an almost membranous substance. The phosgene patients died a quiet death as if from some narcotic poison (hydrocyanic acid); the blood dark and thick would not flow out of the veins near death. The treatment was symptomatic, cupping of the chest, camphor in oil hypo, etc., for mustard; oxygen inhalations almost continuously for the phosgene.

We now had to evacuate all patients leaving the non-transportable to the division relieving us and moving up to the Meuse Argonne front which part we did not know. Of course we could not take the train here but went out in a rain storm at night with all of our property, nine miles away, wet and hungry, and entrained in the rain. After 18 hours we arrived in the early morning, detrained and walked nine miles to our billets, with orders to travel at night and lay in woods in day time so as not to be visible; fortunately, there was a heavy fog and, after four hours walking, with a very light breakfast, we arrived at Conde. Here we remained quiet for three days, running a division hospital in some barracks, the ambulances, having come across country, continuing to function. The sick rate was not heavy and we did not have many to evacuate.

Orders were received to move by camions, so we moved out on the road after six p. m. ready to ride away in the trucks, with destination unknown. We were to leave at ten, but it was raining of course and there was lots of mud. We did not leave, and I slept by the side of the road with my orderly under his shelter tent. The camions were driven by Indo-Chinese. The next night we routed out the Chinese and slept on the hard floor of the camion, expecting to move at any time; third day and night, the same weary waiting. The camions received orders to leave at four p. m. but without us. Anyhow this day the French Lieutenant in charge of our section gave me a very good dinner prepared by his Chinese cook, with wine, etc. The camions left us on the side of the road in the rain and we hated to see them go, but they promised to come back for us. At nine p. m., we received orders to march and packed and got away in a driving wind and rain, marching until seven-thirty a. m., when we arrived at Ippecourt. We had breakfast and dinner at ten. Orders were given at three to leave at five. After another night, we arrived in Rampont at three a. m., cold and weary, slept on a hard floor until daylight and found some barracks on side of a hill for officers and men. We were now about eleven miles from Verdun, within loud sound of the big guns. Corps headquarters were here and an aeroplane would drop daily ribbon-like messages from the front. Enemy planes would try at night to bomb the railroad which was in our valley. Our ambulances began again to evacuate. One company was lent to a neighboring field hospital which had been shot up. We were in the midst of the Meuse Argonne offensive, our division being in reserve. A Hun airship flying low was caught like a sparrow by a flock of hawks after being driven here and there and finally brought down alive in our valley. There were six days of this excitement with air bombing nightly, trying to get the railroad about three hundred yards away; roads were full of troops, wagons, guns, tractors, etc., and busier than Fifth Avenue. Orders were given for the animal-drawn field hospital to proceed to Glorieux and establish a triagé; other hospitals were held in reserve. The French hospital at Glorieux, just outside of Verdun, was occupied by the field hospitals of the 33rd Division, and a working arrangement was made with them. October 8th, the 29th Division began its offensive and the wounded began to arrive.

The work at this triagé, or assorting station, was divided into receiving and evacuating. The receiving was again subdivided into slightly wounded, seriously wounded, non-transportable and gassed, necessitating a separate compartment or building for each. The gas compartment, besides having bathing, clothing and other rooms, had 48 beds. The slightly wounded were received in two ward

tents. A large clerical force and other help was necessary; these were drawn from field hospital headquarters, other field hospitals, and the two sanitary squads.

The 29th Division did some of the hardest fighting here of the entire war, the men frequently "carrying on" until exhausted. The wounds were severe, a large proportion being from high explosives and machine gun bullets, as it was the work of the Division to clean out the artillery and machine gun nests on the east bank of the Meuse, in a high rolling country where the enemy had been for four years. After the advance of our troops, two of the field hospitals, which were in reserve at Rampont, were jumped over to Charney, eight miles north of Verdun. There were no buildings left at Charney for a hospital, so we had to use our tents in the rain and mud, heating them with stoves obtained from the Red Cross. The Red Cross with us did fine work, getting us every thing we asked for, besides giving every patient that passed through, hot drinks, nourishment and smokes, so badly needed, as the men were all hungry and thirsty besides suffering from exposure and exhaustion.

The spirit of the wounded men was splendid; there was no grumbling or complaining from them; they seemed satisfied with what we had; there were no moans except from the unconscious or dying. The wounded soldier was either eager to tell his own experience or remained silent according to his nature. Even when in pain from his treatment, there was only an expression of it on his face but no murmur or complaint; he was wonderful. As an instance, passing through the wards one day after a raid, every one was eager to tell his tale. Perched upon their elbows, each eagerly waited to be questioned and told their stories with the greatest enjoyment.—all except one, who turned his face away with a sad and wistful expression. "What is the matter with you son?" I asked. "Oh, nothing," he replied, "I was only kicked by a mule," and he buried his face in the pillow.

One hospital at Charney was fitted out for gas patients, the other to be used as a triagé, but at this time used for slightly sick or gassed on the way back to the front. Almost every day these hospitals would receive fragments of shell aimed at the guns and railroad at Charney; in fact some of the transportation force of the Division were frequently killed or wounded at this point.

On October 30th, we were withdrawn to the Bar le Duc area. Here, at Mongeville, we established a hospital for our sick, as we were beginning to have some grip. The best spot we could find was muddy and on the bank of a creek. We had to use our tents with lots of duck board, using litters for beds. Another hospital was used to delouse the Division, cooties being plentiful; the other two hospitals continued their training. On the day of the Armistice, we had orders to move toward Metz, in reserve; one battalion of machine gunners had already moved and had to be recalled. At Glorieux we handled over 6,000 patients, sick, wounded and gassed, the Division losing twenty-one per cent. of its personnel. We received 4,000 replacements in the Bar le Duc area. The neighborhoods of Glorieux and Verdun were shelled daily, besides having frequent night bombing. The roads to the front were daily under shell fire. One of our neighbors here was the large 14 inch naval guns, the largest guns used by the United States. It was here that the 29th Division made its repuation as one of the six best divisions in the army, and it was decided that it would be used in the future as shock troops.

Monroe Building.

PEPTIC ULCER.*

By T. C. HARRIS, M. D., Kenbridge, Va.

I am using the term peptic ulcer instead of gastric and duodenal, as it has been proven clinically the two have so much in common that even the X-ray, which has added so much to precision in the diagnosis of these ulcers, often fails to reveal the exact location. Also, from the standpoint of treatment it matters little whether the ulcer is gastric or duodenal. I will not take up your time with the various theories as to the cause of peptic ulcer, except to say that Rosenow now claims they are all due to streptococcic infection.

I will mention a few points as to the symptoms and diagnosis. The glall-bladder and appendix figure very prominently in disturbances of the upper abdomen, so that

* Read at a meeting of the Southside Virginia Medical Association.

symptoms of digestive trouble referred to the stomach or upper abdomen, taken collectively, have nothing in common with ulcer, although the symptoms are made up of the same elements—pain, gas and vomiting—in ulcer, gall-bladder disease and diseased appendix.

The X-ray may or may not decide the diagnosis, so history and symptoms are important. Graham places a great deal of stress on the history and age of the patient. Histories of chronic ulcer lead us back to the early life of the patient, from fifteen to thirty years of age, but if a patient 35 to 50 has had digestive troubles for years and has not developed jaundice, chills and fever, or enlarged liver, his case should be diagnosed ulcer. Ulcer may further be diagnosed when there is pain repeated night after night, with more or less constant distress in the gastric region, without chills, fever or jaundice: when there is a faint and weak feeling, with an empty stomach which is somewhat relieved by light food and drink: when the pain is from the pyloric region downward, and the acids are high; or when pressure, position or soda give ease.

Typical gall-stone attacks that come on suddenly should not cause any confusion, but the chronic gall-stones or chronic cholecystitis cases with adhesions may present a train of symptoms that so simulate ulcer that the diagnosis between the two may be very difficult.

Then, as to whether the ulcer is gastric or duodenal, there are cases in which the symptoms speak stronger for one than the other, while the general characteristics bear a close resemblance, and also, the same patient may have both.

In the Mayo clinic for 1916, eleven and five-tenths per cent of the patients diagnosed and found to have gastric ulcer had duodenal also, and three and two-tenths per cent classed as duodenal had gastric. In the same clinic in a series of nearly 3,000 cases, seventy-five per cent were diagnosed clinically as duodenal and twenty-five per cent gastric. Of these that came to operation, gall-stones, adhesions to the gall-bladder, and diseases of the appendix figured in the final diagnosis. This reduced the percentage until I believe the average ratio in a large series of cases will stand about two-thirds duodenal and one-third gastric.

Duodenal ulcer is more apt to be latent. Perforation may be the first symptom calling for medical aid. In one hundred and fifty-one cases by Perry and Shaw, no less than ninety-one died of hemorrhage or perforation. The longer the course of symptoms, the more likely it is to be duodenal: the higher the acid, the lower the ulcer. Night pain is more frequent in duodenal. Pain three hours after meals is suggestive of duodenal, while continuous symptoms are four times more common in gastric. Vomiting is more common in gastric, and is unusual in duodenal. Ease before the next meal, reclining and pressure ease, are common to gastric. Hematemesis is common to gastric, while melena is suggestive of duodenal, and finally, there are two duodenal cases to one of gastric. However, we need the X-ray, history, symptoms, string-test of Einhorn, and, in fact, all our combined forces to determine ulcer and, when we are sure of its presence, some form of rational and energetic treatment is urgently indicated.

Einhorn places a great deal of stress on the string-test. It certainly has one thing to commend it—its simplicity. He uses it on his stomach bucket which the patient swallows at bedtime. The string is fastened to the night-shirt in such manner that a length of thirty to thirty-two inches from the lips can enter the digestive tract, and the bucket is allowed to travel of its own free will during the night. A knot is made at the teeth in order to determine the length of the thread in the digestive tract, and the next morning the bucket is withdrawn. The thread is immediately and carefully examined for blood-spots and bile-stains. The distance of the blood-spots from the knot at the teeth will give the location of the ulcer. If the end, say lower four to eight inches, is stained a golden yellow, it will show that the bucket passed the pylorous, provided the length of the thread in the digestive tract remaining white exceeds 22 inches. The distance from the teeth to the pylorus is on an average 22 inches. A blood-stain in the neighborhood of sixteen inches points to an ulcer at the cardia: from seventeen and a half to twenty-one and a half, ulcer of the lesser-curvature: twenty-two to twenty-one and one-third inches, of the pylorus; twenty-two and a half and more, ulcer in the duodenum.

Einhorn says that a positive finding, as above, repeated with the same results, practically proves ulcer and its location. The string showing no bile stain and having a length of twenty-five inches or more from the lips, in-

dicates the failure of the bucket to pass the pylorus. This may indicate organic stricture or spasm of the pylorus. To decide this, the test is repeated and atropine is given. Absence of bile on the string in the second test speaks for a real pyloric stenosis. Einhorn still uses his bucket with a No. 5 braided silk; other men are getting good results from the test with an ordinary smooth bead on the end of the string.

We cannot always know whether we have an open or callous ulcer, whether we have one or more, or how near the ulcer is to perforation. We do know from the observation of our greatest surgeons that there is a close relationship between gastric ulcer and gastric cancer, that chronic ulcer is seldom cured medicinally, and, if not cured, is a potential source of cancer. Therefore, in view of these facts, it might be said that the treatment of all chronic ulcers is surgical. Perhaps some of my medical friends or internists may still claim that they cure them medicinally with rest in bed, slop-diet, bismuth, silver alkalies, etc., or by feeding with the duodenal tube; but Dr. Charles Mayo says that operation for ulcer is always urgently indicated after nine bona-fide medical cures. Dr. Strauss argues the subject from a financial standpoint, and pictures the business head of the firm or the important salaried man on the medical cure for weeks, at his home or some hospital, away from his business, visiting various stomach specialists, until the entire "nine medical cures" mentioned by Dr. Mayo had been completed. Finally he drifts into the hands of the surgeon, bled white from loss of blood, or time and expense, and departs very thankful for his relief and with much regret that he could not pay him a good fee, as it had taken about all he had to pay the hospital bill.

The surgical treatment of ulcer has also had its difficulties. Gastro-enterostomy, when popularized twenty-five or thirty years ago, was thought to have solved the problem by giving the ulcer rest. It was soon found that from twenty-five to fifty per cent of the food traveled the same old way and, while it cured some and relieved others, there were still cases in which it was disappointing. Finney devised a pyloroplasty, which was a form of anastomosis between stomach and duodenum. Deaver and others tried this out and found that it was applicable only in selective cases. Balfour has a modification of this operation for patients who did not get the desired relief from gastro-enterostomy, or in cases where mechanical difficulties make gastro-enterostomy impossible. In these cases, he claims signal success with this method.

Strauss in 1914 began some experiments on animals with excision of the ulcer, which he had artificially produced. The trouble in excision had been that the defect would so alter the size and the shape of the stomach that it was considered impracticable. Strauss conceived the idea of inserting transplants to bridge this defect. In his first method he applied a clamp so as to include most of the indurated area. After excising the mass he cut a transplant of peritoneum and transversalis fascia, which he sutured to the mucosa; over this he placed a transplant from the rectus sheath and sutured to the muscularis and serosa in an imbricating way and, over the whole, tacked omentum. The animals were X-rayed 3, 6, 12, and 14 months from the operation, along with some which had not been operated. The Roentgenologist could not distinguish between the animals which had been operated and those which had not. He began using this method on his cases with such uniformly good results that he now advocates excising everything on the gastric side. He has simplified his method in the past year or so; the one he taught us was with one transplant. He makes an elliptical incision to include the ulcer area, through the serosa and muscularis down to the mucosa, and dissects this off, undermines between the muscularis, allowing the mucosa to herniate out. The mucosa is now cut transverseley to the first incision to include all the ulcer. The edges are now brought together with chromic gut. In the defect is placed a transplant from the rectus sheath, if small, or fascia-lata, if very large; these are imbricated with mattress stitches under the edge of the muscularis as formerly. Over the whole the omentum is tacked securely. This not only forms adhesions and prevents leakage, but furnishes nourishment to your transplant.

The advantages of this method are many; it can be done in a much shorter time than a gastro-enterostomy, saving shock, etc., to your patient; it does not alter the normal anatomic

course of the food, and is followed by a much larger per cent of cures, as you have removed the disease. Strauss does the operation on the human in fifteen minutes. We learned to do it on a dog in fifteen to twenty minutes.

I am convinced that the Strauss method, or some modification, or an operation that will include excision in the technic, will finally supplant gastro-enterostomy for all ulcers on the gastric side. Many surgeons excise the ulcer and suture, and then do gastro-enterostomy. Balfour excises with the cautery and then performs gastro-enterostomy. He and the Mayos say that in cases where excision is done also they get much better and more permanent results. Deaver, up to 1914, when I was attending his clinics, advocated and performed gastro-enterostomy almost exclusively, as the operation of choice for ulcer. I have noticed in the last few years in his discussions before some of the large surgical gatherings, that he now strongly advocates excision whenever practicable.

For duodenal ulcer, of which we have more than gastric, we still have a field uncovered, as excision here is not practical without some plastic between the stomach and duodenum. Finney, Heineke and Mikulicz, Balfour, and Horsley have all worked out a pyloroplasty, which in some cases has worked well; and no doubt, in the near future, some form of plastic with the stomach and duodenum, along with excision of the ulcer, will be devised that will be satisfactory. Until then, however, gastro-enterostomy, imperfect as it is, will still be the operation of choice for ulcers on the duodenal side.

I want to apologize for much that has been said in this paper, which represents the labor, experiences and findings of some of the great men I have quoted. I thought it might be of interest to some of you, who, perhaps, had not followed up the subject as closely as I have. As for myself, I am content to follow these men, even a part of the way, and I have no desire or expectation of passing them with anything original.

PRELIMINARY OBSERVATIONS ON THE USE OF PNEUMOCOCCUS ANTIGEN.*

By GERALD A. EZEKIEL, M. D., Richmond, Va.

The classification of the four types of pneumococci and the use of specific sera has placed the treatment of pneumonia on a new basis. It has not been practicable to make use of this method in general practice. In well equipped hospitals in the larger medical centers, physicians are treating their cases by this method.

Pneumococcus antigen, partially autolyzed pneumococci, prepared according to the method of Dr. E. C. Rosenow, is the product which I have been using for the past few months.

Complicating "Flu" in the epidemic of this year, as well as the pandemic of 1918, bronchopneumonia has been of frequent occurrence. In many of these cases the pneumococcus is the infecting agent. There is a type of bronchopneumonia caused by the hemolytic streptococcus. The clinical picture differs somewhat from the bronchopneumonia due to the pneumococcus, mainly in the intensity of the symptoms and marked toxemia.

The observations I have made can best be illustrated by briefly citing a few cases.

Case I. Lobar pneumonia. Classical case clinically. Slide examination, direct smear from sputum, gram positive diplococcus. Crisis occurred in three days and after the second dose of antigen.

Case II. Lobar pneumonia. Classical case clinically. Crisis occurred in four days and after the third dose of antigen.

Case III. Lobar pneumonia. Classical case clinically. Slide examination, direct smear from sputum, general mixture of bacteria reported. Mouse injected died, pneumococcus recovered. Crisis on the fourth day and after the sixth injection.

Case IV. Bronchopneumonia. Slide report, direct smear from sputum, pneumococcus predominating organism. Pus from mouse, pneumococcus. Normal temperature on the third day, and after the second injection of antigen.

Case V. Bronchopneumonia. Very mild case. Small patch posteriorly on the right side, tubular breathing and rales. Slide report, direct smear, gram positive diplococcus predominating organism. Mouse negative. Normal temperature occurred on the third day and after the third injection of antigen.

Case VI. Bronchopneumonia. Slide report, direct smear from sputum, gram positive diplococcus predominating organism. Pus from mouse contained pneumococcus. Normal temperature occurred on the third day and after the second injection of antigen.

* Read before the Richmond Academy of Medicine and Surgery, Feb. 24, 1920.

Case VII. Bronchopneumonia. Slide report, direct smear from sputum, gram positive diplococcus predominating organism. Pus from mouse contained pneumococcus. Normal temperature occurred on the fifth day and after the fourth injection of antigen.

Case VIII. Bronchopneumonia. Slide report, direct smear from sputum, gram positive diplococcus predominating organism. Pus from mouse, pneumococcus found. Normal temperature on the seventh day and after the fifth injection of antigen.

In the cases of lobar pneumonia, the crises occurred in three days. In bronchopneumonia, normal temperature occurred in three of the cases in three days, and in the last two in five and seven days respectively. The first three cases of bronchopneumonia were seen at the beginning of the illness and were diagnosed as "Flu." The temperature either came to normal or very close to normal by the use of aspirin, quinine and phenacetin, but on the third day again became elevated. At this time, for the first time in these three cases was any change noted in the lungs. Immediate use was made of the pneumococcus antigen. The last two cases when seen were well developed, and easily diagnosed at the first visit as bronchopneumonia. In the last case another rise of temperature is seen after the temperature had been normal for two days. The patient had a chill. A history of a previous attack of malaria was given. It is possible that the effect of the antigen was obtained earlier in this case than on the seventh day, but due to a co-existing malaria this could not be definitely claimed. The blood report was not positive, though a few suspicious bodies were seen. Quinine was given and there has been no recurrence of chills or elevation of temperature.

The bacteriologist reported gram positive diplococcus, from the slide examination of smear from sputum, as the predominating organism in all of the cases of bronchopneumonia. Mice were injected in all except the first two cases reported above and, in all except the fifth case, pneumococcus was found in the pus. I do not believe that the sputum from this case was a fair specimen, as a very scant specimen was sent to the laboratory.

The condition of all of these patients seemed to be improved by the use of the pneumococcus antigen. They were apparently less toxic, and all of them said they felt better. The local reaction was slight. The patients did not complain of any great amount of soreness at the point of injection. The duration of the disease was decidedly shortened. Resolution took place promptly. There were no complications. The only drugs used were purgatives and tincture of digitalis.

Pneumococcus antigen is a comparatively new product but, from the satisfactory results I have thus far had from its use, I feel that it should be used in the treatment of pneumonia in much the same way as diphtheritic antitoxin is used in the treatment of diphtheria. Whenever there is a reasonable suspicion of diphtheria, we do not hesitate to give diphtheritic antitoxin and await the bacteriological report. If this same attitude is taken with regard to pneumococcus antigen, the antigen will be given early and in time to do the greatest amount of good. The reaction is slight, and if the case should be proven not to be pneumonia, or pneumonia not due to the pneumococcus, no harm will result from this procedure.

Summary.

First. Both lobar and bronchopneumonia due to infection by the pneumococcus are benefited by the use of pneumococcus antigen and, if given within the first twenty-four to forty-eight hours of the disease, the duration of the case is materially shortened. Given later in the course of the disease, the antigen will aid in bringing about a favorable termination.

Second. The dose of one c. c. of the pneumococcus antigen given once in twenty-four hours is sufficiently often, and nothing is gained by more frequent administration.

Third. There are several advantageous points in the use of antigen instead of sera. The dose is small. The administration is easy. It is not necessary to have the sputum typed, as the antigen contains all four types of pneumococci, and at least one day is gained in instituting specific treatment. It is a remedy that can be used in the most remote sections of the country, pending reports from the laboratory.

"My sermon on thrift made a tremendous impression on the congregation."

"How do you know?"

"I could tell when I counted the collection."

(Mich. Public Health).

Public Health

In The Tuberculosis Field.

Finding the Early Case of Tuberculosis.

Much has been written, and a gratifying amount of good work has been done, in directing the general practitioner toward the importance of early diagnosis in pulmonary tuberculosis, and early diagnosis has been emphasized as the *sine qua non* of success in our dealing with that disease. The constantly increasing number of incipient cases received for treatment at our state tuberculosis sanatoria is proof of the fact that physicians are demonstrating improved technic in chest examinations, depending upon clinical thermometer, pulse rate, and history more, and less on physical findings and sputum examination.

The problem of getting the early case of tuberculosis to go to his physician for examination is an absolute pre-requisite to early diagnosis. Tuberculosis clinics have helped some to this end, but there is a greater need than has yet been supplied by the tuberculosis clinic and the field it covers under present conditions. The patient himself must be reached. He not only must be reached, but he must be told the early symptoms of pulmonary tuberculosis, and he must be told in such fashion that he will recognize the necessity for action on his part, and he must be told in such fashion that he will go to his physician as soon as he recognizes this necessity.

Is not this possible through proper publicity, through the judicious use of newspaper and street-car advertising space under the auspices of the local tuberculosis clinic or the local tuberculosis society? Consider with what little expense this might be done, in Richmond, for instance!

With an appropriate display line, insert weekly in the Richmond and other city newspapers an advertisement approximating the following copy:

"The object of this advertisement* is to instruct people in the early symptoms of tuberculosis, or consumption, so that they will go to physicians before it is **Too Late.**

"Suspicious Symptoms.

"Cough or Expectoration, even if only a little in the morning, which you hardly notice, if continued over two months.

"Frequent **Bronchial, Grip or Fever** attacks very suspicious.

"Blood Spitting. If blood is coughed up, the cause is tuberculosis nine times in ten.

"Pleurisy. Caused by tuberculosis about seven times in ten.

"Night Sweats. Very suspicious.

"Loss of Weight and Loss of Strength. Very suspicious, especially if there is slight cough.

"If any of these symptoms are present, no matter how well you look or feel, cut out this advertisement, take it to your physician, and explain your case.

"Tuberculosis can be cured if taken in time.

"Hundreds of patients who have been treated in the State sanatoria are well today.

"See your physician today, or call at the Local Tuberculosis Society."

* This advertisement inserted and paid for by society sponsoring this effort.

An advertisement modeled along the lines of the above could be inserted weekly, fifty-two times, in the morning and afternoon papers in Richmond for $615.52. Street car advertisements embodying the same copy could be used on every other car in Richmond, Petersburg, Hopewell, and suburban lines for $1.620 a year. The total cost of this publicity would be $2.235.20. If it should send only six early cases to their physicians for diagnosis, it would be money well spent.

Perhaps some public spirited individual might make a ontribution to the Richmond or other Tuberculosis Society for this purpose. It would mark a departure in anti-tuberculosis work which has great potential value in locating early cases of tuberculosis,

The Household Servant.

"The Household Servant, a Problem in the Eradication of Tuberculosis," was the title of a paper read at the recent Health Officers' conference in Richmond, by H. G. Carter, M. D., Superintendent at Piedmont, which is the sanatorium maintained by the state at Burkeville, for colored consumptives. A summary of Doctor Carter's paper follows:

"Poverty, ignorance, and disease must all be fought by all the people of any community in order to get the best result in any one. The interdependence of the two chief races of the South, as shown by the tables of occupation at Piedmont Sanatorium, makes a fight against disease in the two essential, in order to get results in any one.

"The best results are obtained by taking in

the treatable cases. These go back to their communities as living examples that the supposedly impossible has been accomplished—consumption has been cured. The public health worker in any community is greatly aided in his work by being able to point to a living example. He is greatly handicapped by having a corpse returned to his community from any santorium, and I say this regardless of any good done by removing the menace in that community. The bed-ridden consumptives have done about all the damage they will do, unless they are taken up by an over-zealous spirited public health worker and sent several hundred miles, to return to that community a corpse and keep from an institution some early case that might have been benefited by treatment.

"The greatest menace in any community is the household servant, still on the job and wrongly tagged, many of them yet curable These are the cases for treatment, and any other type of cases will keep us forever picking out menaces and getting nowhere in the prevention of tuberculosis." B. L. Taliaferro.

Bacteriological Laboratory Of State Board Of Health.

At a recent meeting of the State Board of Health it was decided that the Laboratory should discontinue the giving of Pasteur treatments. The material which was used for these treatments had always been obtained without cost from the Hygienic Laboratory. They discontinued the distribution of the virus, however, January first.

When the free administration of the Pasteur treatment was begun, the cost of these treatments was almost prohibitive for poor people, and the treatment could only be obtained at certain points. Now, these conditions have so changed that the treatment can be given anywhere by a competent physician. The virus can be obtained from any of the biological supply houses or from the State Board of Health. Furthermore, the entire cost of treatment may be recovered from the county dog fund under the recently enacted dog law.

The examination of dogs' heads will, of course, be continued as heretofore.

Aubrey H. Straus,
Bacteriologist of the State Board of Health.

Analyses, Selections, Etc.

The Relation Of Roentgenology To Clinical Medicine With Special Reference To Gastro-Enterology.

In a recent paper on the above subject, Dr. R. Walter Mills states that the technique of roentgenology is difficult and requires years to full accomplishment. Some time ago we heard much of reducing plate technique to formulae by which any novice could consistently reproduce the best results of the old masters. Such an idea omits several imponderables, to illustrate, the penetrability of the individual patient, the considerable matter of pose embodying a nice judgment of regional anatomy and statics, and the psychological control of the patient. One need hardly mention the time consumed in developing roentgenoscopic skill and the difficulty of maintaining a multiple factored technique in highest efficiency. The clinician has not the time to devote to the technical end, nor has he the knowledge to oversee and control a purely technical worker. He is fully occupied with affairs of his own line, and by the thousand time-consuming details, interviews, consultations and questions of management unavoidably associated with the treatment of patients. Above all he has not training nor time to acquire training in the interpretation of plate or roentgenoscopic shadows; he lacks the ability of the one constantly devoting himself to the art and deriving help from other problems.

The clinician may acquire a knowledge of roentgenology, though at an impracticable loss of time.

One thing is sure; if the clinician attempts X-ray work at all, he should develop it to a respectable degree. Doing some half-hearted fluoroscopic stunt under the guise of an X-ray examination is unfair if not dishonest to the patient, and a raw injustice to the men who have developed the subject often at bitter cost to themselves. Another phase of the situation is seen in internists accompanying their patients to the roentgenologist's, insisting on possessing the plates, and so on. It is doubtful whether the clinician derives anything other than a mildly instructive value from such practice, and there is some question as to

whether he is not wasting his time, for it hardly seems possible that he can learn enough in this fashion to make it worth while.

Yet, there are master roentgenologists whom we may indeed honor for the fullness of their accomplishments. Let it be recalled, however, that they have had the advantage of evolution with the specialty. Only the pioneer builds most soundly and fully. Can the succeeding generations successfully follow in their steps, confronted with the subject in its present form, discouragingly vast and arithmetically progressive in its scope and requirements? It is difficult to believe.

Frequently, most valuable information may be elicited during the course of a roentgenological examination. The most favorable opportunities for questioning and physically examining the patient arise at such time. They are taboo for the strict roentgenolcgical consultant. He is supposed to do a complete or partial examination at the direction of the clinician. There seems a fearful lot of lost motion and lack of economy in such an arrangement. Theoretically every case must be plated to the last degree for all possible conditions whether there be indication of their presence or not.

You may take it as you will as to the opinion expressed. It has indeed not been easy to lay my personal convictions before you; but the facts confront us. It does not seem that the clinician will generally be superlative as his own roentgenologist. It does not seem that roentgenology under present arrangements is being quite as effectively utilized at it might be through limitation and intensive cultivation in association with clinical medicine. It does seem that in this direction may lie the future, the evolution of roentgenology—a state in which the roentgenologist will indeed be physician and consultant, a master and adviser. There can be no question that we have at our disposal the most wonderful diagnostic weapon in medicine today, or any day; does it not behoove us to use it wisely in the interest of culture and service?—*American Journal of Roentgenology*. Nov. 1920.

Chorec-Athetoid And Choreopsychotic Syndromes As Clinical Types Or Sequelae Of Epidemic Encephalitis.

Epidemic encephalitis is characterized by a remarkably protean symptomatology dependent on regional variations in the focal predominance of the underlying histologic changes, according to LaSalle Archambault.

Aside from the usual and familiar clinical picture of midbrain involvement, the disease may yield a number of clinical types closely resembling several well-known affections of the nervous system such as paralysis agitans, poliomyelitis, polyneuritis, cerebellar sclerosis, etc. The combination of choreiform twitchings and acute psychotic disturbance as the salient manifestations is not uncommon and choreoathetoid or frankly athetoid syndromes may be observed as sequelae of the disease.

The occurrence of a chronic or relapsing form of epidemic encephalitis may prove to have an important bearing on the origin of some of the affections which the clinical types of the disease simulate and of other ill-understood conditions such as multiple sclerosis, dysglandular syndromes and certain psychoses.

Variations in the symptomatology of epidemic encephalitis are probably due to individual variations in the relative susceptibility of different levels of the cerebrospinal axis and it is believed that regional exhaustion resulting from prolonged physiologic hyperactivity or from previous disease is an important factor in the localization of the lesions produced by infections invasions of the central nervous system.—*Archives of Neurology and Psychiatry*. Nov. 1920.

Some Underlying Principles Of Intestinal And Gastric Surgery.

Dr. J. Shelton Horsley, of Richmond, in a paper read before King's County Medical Society, Brooklyn, in October, and published in the *Annals of Surgery*, emphasized the importance of following the laws of physiology and of benefiting by the results of observations of pathology in the living when performing a surgical operation. Instances of procedures that were largely mechanical, without regard to biologic processes, were cited, such as the Lane plates in fractures of bones, and reversal of the circulation in blood vessels.

Attention was called to the importance of preserving peristalsis in operations for obstruction of the bowel. When the whole length of the intestine is threaded on a rigid tube in

order to empty the contents of the bowel, much trauma is done and peristalsis may be completely abolished as a result of this procedure.

An enterostomy was recommended, which embodies the principle of Coffey and consists in the insertion of a medium-sized catheter in a loop of bowel near the obstruction.

The unphysiologic aspects of lateral anastomosis were mentioned. The chief objection to the lateral anastomosis is leakage at the mesenteric border. A method of intestinal suturing, which closes this border before the bowel is opened and in which care is taken to clean out the ends of the bowel before suturing, was described. This method consists of a single layer of sutures applied first from the lumen along its mesenteric portion and then converted into an external right angle suture, with an occasional back stitch to prevent drawing the sutures too tight.

The desirability of forming a valve after resection of the cecum was discussed, and an operation for reuniting the bowel after resection of the cecum and ascending colon was described. In this technic, valve formation and enterostomy are done. Enterostomy is recommended after all resections of the large bowel on the right side to prevent gas formation, and to give physiologic rest to the tissues during healing.

The treatment of ulcers of the stomach and duodenum by gastro-enterostomy was discussed, and emphasis was laid upon the fact that jejunal ulcer which follows gastro-enterostomy in a definite percentage of cases is caused by gastro-enterostomy. The unsatisfactory permanent results of gastro-enterostomy were illustrated by quotations from a paper by Frank Smithies, late gastro-enterologist to the Mayo Clinic, in which he reports 273 cases of gastro-enterostomy taken mostly indiscriminately from a larger series. Of this 273 cases there was only 20.9% of complaint free patients.

The dumping of the acid gastric juice into the jejunum which is normally prepared for only alkaline contents causes trouble in most instances of gastro-enterostomy, but the symptoms usually appear late, often months or years after the operation. Roentgenograms and fluoroscopic examinations of gastro-enterostomy cases months or years after the operation show the unnatural progress of the stomach contents.

A pyloroplasty was described which had been previously reported in the *Journal of the American Medical Association*, August 23, 1919. A list of cases done since this paper appeared, together with some modifications of the technic, was given.—(Author's abstract.)

Spondylitis And Abdominal Pain.

Dr. Douglas VanderHoof, of Richmond, calls attention to the fact that although disease of the articulations of the spinal column have been recognized since 4,000 B. C., the reports of spondylitis have been rather infrequent in medical literature. However, radiographic examinations have made it much more frequently recognized in recent years and he has made the diagnosis of hypertrophic spondylitis 87 times in his private practice, over half of these cases having been recognized in the last two years.

In twenty-three of these cases visceral disease was excluded after complete study. Pain in these cases may be from involvement of the nerve roots perceived in the back, shoulders, hips or extremities or referred to the thorax or abdomen, the character varying from dull aching or drawing sensations to the most agonizing paroxysms. This pain may be unilateral or bilateral and, if bilateral, is usually more severe on one side. Only five references could be found in the literature on the subject in which the spondylitis pain was actually confused with abdominal disease although this contingency may have happened quite frequently.

VanderHoof reports a number of illustrated cases where the pain of spondylitis simulated renal colic, appendicitis, biliary colic, and other abdominal conditions. At times spondylitis was discovered in Roentgen-ray examination of the gastro-intestinal tract.

The origin of the spondylitis he believes to be from focal infection. He thinks that spondylitis with referred abdominal pain is more frequent than that of tabetic crises. Treatment of the condition consists of orthopaedic fixation of the spine plus the removal of th foci of infection. Altogether the paper is a most admirable one.—*Journal of the A. M. A.*, June 19, 1920.

Medical Education

Teaching and Hospital.*

Even the didactic lecture may not perhaps be wholly dispensed with. Case work is discrete; students rarely possess sufficient generalizing power to redeem it from scrappiness. At the bedside not much time is available for comprehensive or philosophical elucidation. The lecture—hugging as closely as may be the solid ground of experienced fact—may therefore from time to time be employed to summarize, amplify, and systematize. In time, the student's sense of reality will be sufficiently pronounced to enable him to grasp a rare condition that he knows only through exposition. The wards may have failed to supply an example. But however used—whether to classify first-hand knowledge or to fill up a gap—the didactic lecture would appear to be pedagogically sound only at a relatively late stage of the student's discipline. It has no right to forestall experience, filling the student with ill comprehended notions of what he is going some time to perceive.

Some ingenious Harvard men, profiting by the experience of the Harvard law school, have evolved an effective discipline in the art of inference. Just as a preliminary course in physical diagnosis, teaching the student how to gather his facts, is valuable, so, it is urged, a formal training in the inductive handling of ascertained data may be of use to students whose logical habit has been none too strictly formed. "Let us assume such and such data: what do they mean? What would you do?" This is the essence of the case method,—a method, by the way, excellently adapted to class use, calculated there to develop the friction, competition, and interest which are powerful pedagogical stimulants. It is, moreover, economical, for it brings considerable numbers in touch with fertile teachers, at a minimum expenditure of time and energy.

The class in medicine has another use: it may be made the means of training students to use the "literature;" once more, of course, only by way of amplifying an actual sense-experience. One's own experience always falls short; yet without a very vivid realization of just what one's own experience is and means, one is in no position to use a vicarious experience intelligently. The careful taking and keeping of records is in the first instance the means of clarifying the student's own experience; the instructor's comments raise the questions which he may profitably investigate in the literature. The case record in full and an abstract of important publications on the same subject may well fill a regularly appointed hour given to informal conference and discussion. The student will thus get into the way of reading substantial journals and "running down" literature in the course of his actual practice.

It is a nice question as to how the student's time in the third and fourth year is to be apportioned between patient work, ward work, demonstrative and class exercises, and didactic lectures. The number of hours is itself necessarily elastic: for if the hospital is a laboratory, it is open at all hours, and, subject to the limitations fixed in each case by the condition of the patient, the wards may be used by students, even though no teaching is going on. The principle upon which division may be made has been, however, very clearly stated by Cabot and Locke. "Learning medicine is not fundamentally different from learning anything else. If one had one hundred hours in which to learn to ride a horse or to speak in public, one might profitably spend perhaps an hour (in divided doses) in being told how to do it, four hours in watching a teacher do it, and the remaining ninety-five hours in practice, at first with close supervision, later under general oversight."*

In what relation is the medical school to stand to its hospital if the methods above described are to be instituted? Exactly the relation which it occupies to its laboratories generally. One sort of laboratory may as well be borrowed as another. The university professor of physics can teach his subject in borrowed quarters quite as well as the university professor of clinical medicine. Courtesy and comity will go as far in one case as in the other: in both it keeps teaching to the demon-

* Taken from Carnegie Foundation For The Advancement of Teaching. Bulletin No. 4. 1910.

* "The Organization of a Department of Clinical Medicine," by Richard C. Cabot and Edwin A. Locke, p. 9. (Reprinted from Boston Med. and Surg. Journal, Oct. 19, 1905.)

strative basis,—or worse, according to the limitations prescribed. The student can never be part of the organization in a hospital in which he is present on sufferance. A teaching hospital will not be controlled by the faculty in term-time only; it will not be a hospital in which any physician may attend his own cases. Centralized administration of wards, dispensary, and laboratories, as organically one, requires that the school relationship be continuous and unhampered. The patient's welfare is ever the first consideration; we shall see that it is promoted, not prejudiced, by the right kind of teaching. The superintendent must be intelligent and sympathetic: the faculty must be the staff, solely and alone, year in, year out. There will be one head to each department—a chief, with such aides as the size of the service, the degree of differentiation feasible, the number of students, suggest. The professor of mdicine in the school is physician-in-chief to the hospital; the professor of surgery is surgeon-in-chief; the professor of pathology is hospital pathologist. School and hospital are thus interlocked. Assistants, internes, students, collaborate in amassing data and compiling case records. The student is part of the hospital machine; he can do no harm while all the pressure of its efficient and intelligent routine is used to train him in thorough and orderly method. There comes a time, indeed, in a physician's development when any opportunity to look on is helpful; but only after he is trained: his training he cannot get by looking on. That he gets by *doing*: in the medical school if he can: otherwise, in his early practice, which in that case furnishes his clinical schooling without a teacher to keep the beginner straight and to safeguard the welfare of the patient.

The control of the hospital by the medical school puts another face on its relations to its clinical faculty. What would one think of an institution that, requiring a professor of physics, began by seeking some one who had his own laboratory or had got leave to work a while daily in a laboratory belonging to some one else? That is the position of the medical school that, in order to gain even limited use of a hospital ward, has to cajole a staff physician with a professorial title! When the hospital belongs to the medical school, appointments are made on the basis of fitness, eminence, skill. A man is promoted if he deserves it; if a better man is available elsewhere, he is imported. Opportunities are his in virtue of the university's choice: it is absurd to reverse the order. The men thus freely selected will be professors in the ordinary acceptation of the term: they hold chairs in an institution resting on a collegiate basis,—a graduate insitution, in other words. They will be simultaneously teachers and investigators. Non-progressive clinical teaching involves a contradiction in terms. The very cases which are exhibited to beginners have their unique features. New problems thus spring up. Every accepted line of treatment leaves something to be desired. Who is to improve matters, if not your university professor, with the hospital in which he controls conditions, with a dozen laboratories at his service for such aid as he summons, with a staff who will be eyes and ears and hands for him in his absence? These conditions exist in Germany, and clinical science has there thriven: they are lacking here, and clinical medicine droops in consequence. Undoubtedly, outright research institutions for clinical medicine are also necessary: the routine of the clinical teacher cuts into his time, to some extent limits the tasks he may essay, for the knotty problems of clinical medicine are excessively complicated and difficult. But the field abounds in questions for which the university hospital with its laboratories is the right place. Nor will the young doctor, for all his admirable technique, prove a progressive practitioner, even to the extent of keeping up his reading, unless his teachers have been so before him.

By the laboratories connected with the university hospital we do not mean merely the fundamental laboratories, described in a previous chapter, or the clinical laboratory, just mentioned: the former as such deal with the subject-matter of their respective sciences, in their general relations; the latter is part of the routine machinery of the hospital. To suffice for clinical investigation the laboratory staff must be so extended as to place, at the immediate service of the clinician, the experimental pathologist, experimental physiologist, and clinical chemist in position to bring all the resources of their several depart-

ments to bear on the solution of concrete clinical problems. Of these branches, experimental pathology and physiology have already won recognition; the next step in progress seems to lie in the field of clinical chemistry, thus far quite undeveloped in America.

It follows that in other respects, too, the clinical professors will be on the common university basis: salaried, as other professors are. Of course, their salaries will be inadequate, *i. e.*, less than they can earn outside,—all academic salaries paid to the right men are. But there is no inherent reason why a professor of medicine should not make something of the financial sacrifice that the professor of physics makes: both give up something—less and less, let us hope, as time goes on—in order to teach and to investigate. The clinical teacher should indeed not arbitrarily restrict his experience: he may wisely develop—preferably in close connection with the hospital—a consulting practice, assured thus that his time will not be sacrificed to trivial ailments. On the same basis, other university facilities are at the service of those who require unusually skillful aid; for at all points only good can come of educational contact with unsolved problems,—practical or other. But a consulting practice —developed in a professional or commercial, rather than in a scientific spirit—may prove quite as fatal to scientific interest as general practice. University hospitals, academic salaries, etc., make the conditions in which clinical medicine may be productively cultivated. They do not create ideals; and without ideals, super-abundant and highly paid consultations are perhaps as demoralizing as superabundant low-priced "calls."

The Truth About Medicine

During December the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Calco Chemical Co.:
- Salicaine.

Coleman Laboratories:
- Bacillus Bulgaricus.

E. R. Squibb and Sons:
- Procaine.
- H. T. Procaine.
- Solution Tablets Procaine.

Winthrop Chemical Co.:
- Adalin Tablets 5 grains.
- Veronal Tablets 5 grains.
- Novaspirin Tablets 5 grains.

Lederle Antitoxin Laboratories:
- Typhoid Glycerol-Vaccine.
- Typhoid Combined Glycerol-Vaccine.
- Pertussis Glycerol-Vaccine.
- Pneumococcus Glycerol-Vaccine.

The Beebe Laboratories:
- Pneumococcus Vaccine No. 14.
- Typhoid-Paratyphoid Vaccine No. 3.
- Colon Vaccine (Acne) No. 11.
- Acne (Mixed) Vaccine No. 10.

Nonproprietary Articles:
- Phenetsal.
- Saligenin.

NEW AND NONOFFICIAL REMEDIES.

Mercury (mercuric) Benzoate-Seydel.—A brand of mercuric benzoate (See New and Nonofficial Remedies, 1920, p. 181) complying with the N. N. R. standards. Seydel Manufacturing Co., Jersey City, N. J. (Jour. A. M. A., Dec. 4, 1920, p. 1569).

Culture of Bacillus Bulgaricus-Coleman.—A pure culture of Bacillus Bulgaricus, marketed in bottles containing about 90 Cc. This culture is stated to be suitable for all purposes for which Bacillus Bulgaricus is used (see general article on Lactic Acid Producing Organisms and Preparations, New and Nonofficial Remedies, 1920, p. 156). Coleman Laboratories, Wheeling, W. Va. (Jour. A. M. A., Dec. 18, 1920, p. 1717).

Pneumococcus Glycerol Vaccine (Types I, II, III, Polyvalent) Lederle.—A suspension of killed pneumococci of characteristic strains of Types I, II and III (equal proportions) in a vehicle composed of glycerol, 66 per cent.; physiological solution of sodium chloride, 33 per cent., and cresol, 1 per cent. Supplied in packages of three vials containing the glycerol vaccine and of three vials of sterile diluent with which to make the proper dilution of the vaccine at the time of injection. For a discussion of the actions and uses of pneumococcus vaccine, see New and Nonofficial Remedies, 1920, p. 286. Lederle Antitoxin Laboratories, New York.

Pertussis Glycerol Vaccine-Lederle.—A suspension of killed pertussis bacteria (Bordet) of eight strains, in a vehicle composed of glycerol, 66 per cent.; physiological solution of sodium chloride, 33 per cent., and cresol, 1 per cent. The product is supplied in packages of five vials containing the glycerol vaccine, and five vials of sterile diluent with which to make the proper dilution of the vaccine at the time of injection. For a discussion of the actions and uses of pertussis bacillus vaccine, see New and Nonofficial Remedies, 1920, p. 285. Lederle Antitoxin Laboratories, New York.

Typhoid Glycerol Vaccine (Prophylactic)—Lederle.—A suspension of killed typhoid bacteria (Rawling's strain) in a vehicle composed of glycerol, 66 per cent.; physiological solution of sodium chlorid, 33 per cent., and cresol, 1 per cent. The product is supplied in packages of three vials containing the vaccine, and three vials of diluent with which to make the proper dilution of the vaccine at the time of injection. For a discussion of the actions and uses of typhoid vaccines, see New and Nonofficial Remedies, 1920, p. 291. Lederle Antitoxin Laboratories, New York.

Typhoid Combined Glycerol Vaccine (Prophylactic)—Lederle.—A suspension of killed typhoid bac-

teria (Rawling's strain), 50 per cent.; killed paratyphoid bacteria, Type A, 25 per cent., and killed paratyphoid bacteria, Type B, 25 per cent., in a vehicle composed of glycerol, 66 per cent.; physiological solution of sodium chlorid, 33 per cent., and cresol, 1 per cent. The product is supplied in packages of three vials containing the vaccine, and three vials of sterile diluent with which to make the proper dilution at the time of injection. For a discussion of the actions and uses of typhoid vaccines, see New and Nonofficial Remedies, 1920, p. 291. Lederle Antitoxin Laboratories, New York. (Jour. A. M. A., Dec. 25, 1920, p. 1783).

PROPAGANDA FOR REFORM.

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Linonine (Kerr Chemical Co.), held misbranded on the ground that the curative claims were held false and fraudulent. Valentine's Sarsaparilla Compound with Potassium Iodide (Allan Pfeiffer Chemical Co.), sold under therapeutic claims which were false and fraudulent. Olive Branch (Olive Branch Remedy Co.), misbranded in that the curative claims were false and fraudulent. Prince's Pills, Liniment and Tru-Vigor Nerve Tablets (Boston Drug and Chemical Co.), misbranded in that the therapeutic claims made for them were held false and fraudulent. Mrs. Summers' Absorbent Pile Remedy, Mrs. Summers' Womb, Ovarian and Kidney Tonic and Vitalizer Tablets and Mrs. Summers' Heart, Brain and Nerve Pills (Vanderhoof and Co.), misbranded in that they were sold under therapeutic claims which were false and fraudulent. Compound Syrup of Hypophosphites, Bromo Febrin, Hystoria, Aromatic Cod Liver Oil, Red Cross Kidney and Liver Regulator, White Pine and Tar Syrup, and Boro-Thymine (Cal-Sino Co.), misbranded in that the therapeutic claims were false and fraudulent (some were also held adulterated because their composition was misleadingly or falsely declared). (Jour. A. M. A., Dec. 11, 1920, page 1663).

Physician's Stock In Prescription Products.—Is the public getting a square deal when physicians are financially interested in the products that they may be called on to prescribe? Is the average layman's confidence in the medical profession likely to be enhanced when he learns that the physician to whom he went for treatment has a financial interest in the therapeutic agent which was prescribed? It cannot be too often emphasized that it is against public interest and scientific medicine for physicians to be financially interested in the sale of products which they may be called on to prescribe for the sick. It is perfectly true that there are many physicians who would not consciously permit financial considerations to warp their judgment, but it is not humanly possible to remain unbiased in cases of this sort. (Jour. A. M. A., Dec. 11, 1920, p. 1662).

The Parry Medicine Co. barred from the mails.—For some years Pittsburgh has harbored a quack concern known as the Parry Medicine Company. The president of the company was one Leonard L. Parry, who advertised himself as "Dad Parry, the Healer" and also as "The Miracle Man." In April, 1917, Parry, who is an obviously ignorant faker, was arrested and convicted of the illegal practice of medicine and was sentenced to pay a fine and to serve a six months' sentence in jail. Apparently as soon as Parry got out of jail he went right back to his quackery. As a result the federal authorities took action, and the Parry Medicine Co. has been denied the use of the mails. The "medicines" put out by the Parry concern were fourteen in number and were numbered consecutively. They were essentially the same in composition, differing only in flavoring. Each was composed approximately of alcohol 25 per cent.; water, 25 per cent., and olive oil, 50 per cent., to which was added a few drops of essential oils. No. 1 was for tuberculosis, lungs, bones or flesh, gallstones or tapeworm. No. 2 was for cancers, adenoids, hemorrhoids, piles, asthma, goiter, typhoid and all other fevers. Extensive curative claims were similarly ascribed to the remaining twelve preparations. (Jour. A. M. A., Dec. 18, 1920, p. 1732).

German Institute for Examination of Pharmaceuticals.—It is proposed that the commission founded years ago by the German internists—the Arzneimittel-Kommission—is to be changed into an institution to investigate new pharmaceutical articles and supply information thereon to physicians on demand. An information bureau and bibliographic center is planned, and it is proposed to test new inventions for the manufacturers. The commission announces that it has been decided not to restrict the examinations to the chemical, pharmaceutical and pharmacologic side of the matter, but in given cases tests and investigations at the bedside will be made. It is stated that the pharmacologic investigations are to be made at the pharmacologic institute of the University of Berlin, which is in charge of Heffter, and that the institute is to be the headquarters of the new Prufungsamt. (Jour. A. M. A., Dec. 25, 1920, p. 1791).

Book Announcements

The Treatment Of Wounds Of Lung And Pleura. Based on a Study of the Mechanics and Physiology of the Thorax. Artificial Pneumothorax. Thoracentesis, Treatment of Empyema. By PROF. EUGENIO MORELLI, Assistant in the Medical Clinic of Royal University of Pavia. Maggiore Medico, Field Hospital No. 79. Translated from the Italian by LINCOLN DAVIS, formerly Lt. Col., M. C., U. S. Army, and FREDERICK C. IRVING, formerly Major, M. C., U. S. Army. Boston. W. M. Leonard, Publisher. 1920. Cloth, 8 vo. 214 pgaes.

Diagnosis And Treatment Of Brain Injuries. With and Without a Fracture of the Skull. By WILLIAM SHARPE, M. D., Professor of Neurologic Surgery, N. Y., Polyclinic Medical School and Hospital; Consulting Neurologic Surgeon to several hospitals. 8vo of 757 pages with 232 illustrations. Philadelphia and London. J. B. Lippincott Company. 1920. Cloth. Price $8.00.

Human Parasitology, With Notes On Bacteriology, Mycology, Laboratory Diagnosis, Hematology and Serology. By DAMASO RIVAS, M. D., PH. D., Assistant Professor of Parasitology and Assistant Director of the course in Tropical Medicine, University of Pennsylvania. Octavo Vol-

ume of 715 pages with 422 illustrations and 18 plates most of which are in colors. Philadelphia and London. W. B. Saunders Company. 1920. Cloth, $8.00 net.

An Epitome Of Hydrotherapy, for Physicians, Architects and Nurses. By SIMON BARUCH, M. D., LL. D., Consulting Physician to Knickerbocker and Montefiori Hospitals, Consulting Hydrotherapeutist to Bellevue Hospital, New York City, Formerly Professor of Hydrotherapy, College of Physicians and Surgeons, Columbia University. 12mo of 205 pages, illustrated, Philadelphia and London. 1920. W. B. Saunders Company, Cloth, $2.00 net.

Advanced Lessons in Practical Physiology. For Students and Practitioners of Medicine. By RUSSELL BURTON-OPITZ, M. D., Ph. D., Associate Professor of Physiology, Columbia University, New York City. Philadelphia and London. W. B. Saunders Company. 1920. Octavo of 238 pages with 123 illustrations. Cloth, $4.00 net.

Healthy Living. By CHARLES EDWARD AMORY WINSLOW, D. P. H., Professor of Public Health, Yale Medical School, etc. **Book I.** How Children Can Grow Strong For Their Country's Service, with a chapter on "Physical Exercises," by WALTER CAMP. 248 pages. **Book II.** Principles of Personal and Community Hygiene, with a chapter on "Sport and Health," by WALTER CAMP. 405 pages. 12 mo. Illustrated. Cloth. 1920. Charles E. Merrill Company, New York and Chicago.

Diseases of the Intestines and Lower Alimentary Tract. By ANTHONY BASSLER, M. D., Professor of Gastro-Enterology, Fordham University Medical College and N. Y. Polyclinic Medical School and Hospital; Visiting and Consulting Physician to several hospitals. Philadelphia. F. A. Davis Company, Publishers. English Depot, Stanley Phillips, London. 1920. Octavo, 660 pages. Illustrated with 154 Text Engravings and 62 Full-Page Half-Tone Plates (with over 70 figures) some in colors. Cloth. Price $7.00 net.

The Duodenal Tube and Its Possibilities. By MAX EINHORN, M. D., Professor of Medicine, N. Y. Post-Graduate Medical School; Visiting Physician, Lenox Hill Hospital, New York City. Octavo of 122 pages with 51 illustrations. Philadelphia and London. W. B. Saunders Company. 1920. Cloth, $2.50 net.

Massage and Exercises Combined. A Permanent Physical Culture Course for Men, Women and Children. Health-giving, Vitalizing, Prophylactic, Beautifying. A New System of the Characteristic Essentials of Gymnastic and Indian Yogis Concentration Exercises Combined with Scientific Massage Movements. With 86 illustrations and Deep Breathing Exercises. By ALBRECHT JENSEN, formerly in charge of Medical Massage Clinics at Polyclinic Hospital and other hospitals, New York. 1920. New York, N. Y. 220 West 42nd Street. Octavo of 93 pages. Cloth, $4.00 net.

A Short History of Nursing. From the Earliest Time to the Present Day. By LAVINIA L. DOCK, R. N., Secretary, International Council of Nurses. In collaboration with ISABEL MAITLAND STEWART, A. M., R. N., Assistant Professor, Dept. of Nursing and Health, Teachers' College, Columbia University, New York. G. P. Putnam's Sons, New York and London. The Knickerbocker Press. 1920. 12 mo. 392 pages. Cloth, $3.50 net.

Psychopathology. By EDWARD J. KEMPF, M. D., Clinical Psychiatrist to St. Elizabeths Hospital (formerly Government Hospital for Insane), Washington, D. C.; author of "The Autonomic Functions and the Personality." St. Louis. C. V. Mosby Company. 1920. Octavo. 762 pages with 87 illustrations. Cloth. Price, $9.50 net.

Anniversary Tribute to George Martin Kober. In celebration of his seventieth birthday. By his friends and associates. March 28, 1920. FRANCIS A. TONDORF, S. J., PH. D. Washington, D. C. 1920. Octavo. 381 pages. Cloth.

Practical Massage and Corrective Exercises With Applied Anatomy. By HARTVIG NISSEN, President of Posse Normal School of Gymnastics; Superintendent of Hospital Clinics in Massage and Medical Gymnastics; for 24 years Lecturer and Instructor of Massage and Swedish Gymnastics at Harvard University Summer School, etc., etc. Fourth revised edition. Philadelphia. F. A. Davis Company, Publishers. English Depot, Stanley Phillips, London. 1920. 12 mo, 225 pages with 68 original illustrations, including several full-page half-tone plates. Cloth, $2.00 net.

An Introduction to Bacteriology for Nurses. By HARRY W. CAREY, A. B., M. D., Asst. Bacteriologist, Bender Hygienic Laboratory, Albany, N. Y. (1901-3); Pathologist to Samaritan, Troy, and Cohoes Hospitals, and City Bacteriologist, Troy, N. Y. Second Revised Edition. Philadelphia. F. A. Davis Company, Publishers. English Depot. Stanley Phillips, London. 1920. 12 mo. 149 pages. Cloth, $1.25 net.

Physiology and Biochemistry in Modern Medicine. By J. J. R. MacLEOD, M. D., Professor of Physiology, University of Toronto, Toronto, Canada; formerly Professor of Physiology, Western Reserve University, Cleveland, Ohio. Assisted by ROY G. PEARCE, A. C. REDFIELD and N. B. TAYLOR and by others. Third Edition. St. Louis. C. V. Mosby Company. 1920. Octavo of 992 pages with 243 illustrations, including 9 plates in colors. Cloth, $10.00 net.

Hygiene of Communicable Diseases. A Handbook for Sanitarians, Medical Officers of the Army and Navy and General Practitioners. By FRANCIS MUNSON, M. D., Lieutenant, Medical Corps, U. S. N., retired; Lecturer on Hygiene and Instructor in Military Surgery, School of Medicine, Georgetown University; etc. Paul B. Hoeber. New York. 12 mo. 793 pages. Illustrated. Cloth. Price, $5.00 net.

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Editorial

The Cause Of Symptoms Following Operations On The Stomach.

Careful medical observers have been noting for some years that the usual surgery of the stomach was by no means a specific for gastric diseases. Within the last half century, surgery has successfully invaded many fields that were formerly considered the peculiar "hunting ground" of the internal medical man. Surgery of appendicitis and of gall stones constitutes one of the most brilliant chapters in modern medicine. Inspired by the extremely satisfactory results here, surgeons attacked with high confidence ulcers of the stomach and duodenum. It seemed that if an ulcerated appendix or a diseased gall bladder could be removed with complete relief to the patient, operations for ulcer of the stomach should be followed by the same fortunate results.

The usual surgical therapy for ulcers of the stomach or duodenum is gastro-enterostomy. The operation is comparatively simple and was formerly done in many cases where no real ulcer existed. The clinical results here were not satisfactory and it was thought that this was because there was no lesion. Finally, as careful observers followed the late histories of patients on whom gastro-enterostomy had been done for demonstrated ulcer, the percentage of unsatisfactory results greatly increased. Frank Smithies, formerly gastro-enterologist at the Mayo Clinic and now at the Augustana Hospital in Chicago, reported 273 cases of gastro-enterostomy with only 20.9% of the patients complaint free, and the paper in which this appeared was not primarily critical of gastro-enterostomy. Eggleston, in a recent issue of the Journal of the American Medical Association, also reported very unsatisfactory results following gastro-enterostomy for ulcers of the stomach or duodenum. Roentgenologists who follow these cases and internists to whom many of these patients return months and years after the operation, are usually not enthusiastic about gastro-enterostomy.

The symptoms that the patient complains of when he has trouble after gastro-enterostomy are suggestive of ulcer. In about 4% of the patients who have had a gastro-enterostomy, ulcer of the jejunum occurs. If great care is taken with the operation and catgut sutures are used, this percentage can be reduced to about 2%, but it cannot be eliminated. It seems probable, however, that for every actual ulcer of the jejunum there are many more cases in which the switching of the acid gastric juice into the jejunum that is prepared solely for alkaline contents, will produce congestion and irritation without the actual formation of an ulcer. The cause of the ulceration or chronic irritation of the jejunum is doubtless the unphysiologic procedure which permits the jejunum to be flooded with acid contents instead of permitting the gastric juice to pass through the pylorus and become neutralized and finally alkalinized before it reaches the jejunum.

That some patients have such an unusual resistance that they can overcome this unphysiological handicap is not sufficient justification for gastro-enterostomy where the pylorus is patent. When the pylorus and upper duodenum are infiltrated with scar tissue and there is a dense stenosis, gastro-enterostomy gives brilliant results. This is true largely because the stenosed pylorus does not permit the exit of any gastric juice after a gastro-enterostomy, so the alkalinity of the duodenal contents is unimpaired and can readily neutralize the acidity of the gastric juice at the stoma of the gastro-enterostomy. When, however, the pylorus is patent and some gastric juice is delivered through the pylorus, it reduces the alkalinity of the duodenal contents which cannot then quickly

neutralize the gastric juice at the site of the gastro-enterostomy. It is well known that the pylorus is difficult to close and a ligature or an infolding operation only closes it for a few weeks, while cicatricial stenosis produces permanent closure. It is for this reason that gastro-enterostomy after cicatricial stenosis gives such satisfactory results.

It seems that instead of magnifying the importance of technical errors in the performance of gastro-enterostomy, such as the use of clamps and of non-absorbable sutures, we should more justly regard the violation of a physiologic principle as the real cause of the jejunal ulcer or irritation which follows gastro-enterostomy. We know that the use of clamps and non-absorbable sutures elsewhere in the stomach or intestines is readily borne, but in a gastro-enterostomy where the tissues are weakened by being subjected to unphysiologic conditions, these things will produce symptoms, whereas in normal tissue they can be well tolerated.

After pyloroplasty it is not unusual to find pain, discomfort and sometimes hunger pain, if there was an adherent gall bladder at the time of the pyloroplasty and the gall bladder was not removed. In order to understand this, we must remember that the ulcer of the duodenum or stomach was, in all probability, originally caused, as shown by Rosenow, by hematogeneous infection with streptococci. These bacteria have to some extent a selective action, but usually there is an inflammation of the gall bladder and probably of the appendix and kidneys, from the irritation of the products of the bacteria when the ulcer is originally formed. Often the cholecystitis is rapidly overcome, but if it is severe enough to leave adhesions the gall bladder is permanently damaged. If then, a pyloroplasty is done for ulcer of the duodenum or stomach and the gall bladder is adherent, it may be taken as a definite evidence of a former cholecystitis. If the adhesions are separated and the gall bladder is manipulated, a latent infection of the gall bladder is often stirred up, adhesions reform with double severity and the patient will have a recurrence of symptoms. If a gastro-enterostomy is done, these symptoms will be relieved for a few months or longer, until jejunal lesions begin to give trouble.

The cause of this discomfort after pyloroplasty is due to the fact that adhesions from the gall bladder to the duodenum or pylorus, in a stomach that is otherwise normal, permit the tugging on these adhesions with each peristaltic wave and as they lead directly or indirectly to the tissues along the posterior parietal peritoneum which are supplied with spinal sensory nerves, an unusual amount of tugging will give discomfort and pain. Gastro-enterostomy relieves these symptoms by permitting the stomach to empty more easily and in this way reduces the amount of peristalsis at the pyloric end of the stomach. It relieves, not by removing the pathology, but by ameliorating a symptom. This pain can be best prevented by bearing in mind the etiology of ulcer of the stomach or duodenum and removing gall bladders that are primarily adherent. When doing a cholecystectomy under these conditions, following the procedure practised by Murat Willis, the stump of the cystic duct should not be drained. In this manner the adhesions that might form because of the presence of the drainage tube are obviated and the stomach and duodenum are returned as nearly as possible to their physiological normal.

J. Shelton Horsley.

"If By Reason Of Strength."

Old age is not a second childhood. It is a physiologic stage of life very different, when normally experienced, from childhood. True, the body changes. The digestive organs; the circulatory organs; the blood making organs; the organs of internal secretion controlling metabolism and sexual function; the skeletal muscles and joints; the skin; the hair; the organs of special sense;—all change with the length of years. This is true by normal processes; this must be true in a greater and more emphatic way in processes of disease, so common at one time or another in the body of the youth and adult. The physical powers or functions of the body of man, as he approaches the half century mark, normally begin to lessen; the eye, its vision; the stomach, its "green-apple" power of digestion and motility; the muscles of the arms, legs and back, their youthful power of response; the heart, its endurance in prolonged effort and strenuous contest; the blood vessels, their compressibility and elasticity; the kidney, its permeability and normal function. So it is, the body reserves

are encroached upon and evidences of age appear.

HABITS—INFECTIONS—WORK

I. HABITS, acquired in youth and adult life, influence materially the course of events in senescence. The feeding of one's self is greatly directed by habit. What one eats, the amount, the manner and method of taking food daily, are conditions followed, in a vast number of people, by the order of habits, rather than by any well considered plan or system. Hence, children acquire diseases of their forefathers as a result of the yoke of habit fastened by the environmental conditions in which they are reared. The habits of eating, satisfying tastes and gastronomic demands, cause many to take into the body excessive amounts of food and drink, thus constantly over-taxing or, at least, keeping digestive organs and structures performing metabolism and elimination of body wastes, running at full capacity through the first five decades of life. As a result, at fifty, SYMPTOMS take position in the body as a jarring note, where normal function should noiselessly perform its physiologic action. The heart may then palpitate or remit; the blood vessels may harden; the kidneys may become sclerotic. The penalties of over-indulgence must be paid, although it may be at fifty only in small installments.

Then, at fifty, make an inventory of the habits of eating and drinking and evaluate them; having done this, set up, if need be, a new order of living!

II. INFECTIONS. Bacterial growth in the body tends to harm the body. The self-limited infections processes, having passed to lysis, may be considered not so harmful, from the point of view under consideration, as the more chronic, prolonged and harbored infections. At fifty, a most common cause, productive of the quickening signs of advancing age, is oral focal infections, particularly of the teeth and accessory sinuses of the head and face. Chronic infections of the lungs and blood, as summed up in tuberculosis and syphilis, bring out prematurely gross evidences of old age. An early ferreting out and ridding the body of such noxious organisms is imperative, if the inroads of old age are to be deferred.

III. WORK. All work and no play through years is another factor in inviting the early appearance of old age. The up-keep of the physical body would seem to demand a certain quota of one's time for muscular and recreative exercises. This era of competition and stress, tugging tightly at the cords of ambition and success, demands, if one is to maintain the advantage of physical well-being in the fifties, the regulation of one's hours of work, recreation and sleep on a plan consonant with fitness at that age.

With a fit body at fifty, one may enter the sixth and seventh decades alert and forelooking being possessed of qualities of mind rich in the wisdom of varied experiences and ripened judgments; and there, in a rarer air, work upon life's problems for the benefit of mankind. So, above and beyond the battle of life, where contention and conflict rage in effort for position and power, the sixth and seventh decades afford one a breadth of view, a wider perspective, freer from narrowness, partisanship and strife, and secure for one's ripe manhood a realm of activity in which to fulfill the mission of life that finds its greatest fruition in service to society.

One Focal Infection:—One Hundred Years Ago And Now.

Benj. Rush* says: "Some time in the month of October, 1801, I attended Miss A. C. with a rheumatism in her hip joint, which yielded, for a while, to the several remedies of that disease. In the month of November it returned with great violence, accompanied with a severe toothache. * * * * I directed it to be extracted. The rheumatism immediately left her hip and she recovered in a few days. She has continued ever since to be free from it.

"Soon after this, I was consulted by Mrs. J. R. who had been affected for several weeks with dyspepsia and toothache. Her tooth, *though no mark of decay appeared in it*, was drawn by my advice. The next day she was relieved from her distressing stomach complaints, and has continued since to enjoy good health.

"Some time in the year 1801, I was consulted by the father of a young gentleman in Baltimore, who had been affected with epilepsy. I inquired into the state of his teeth and was informed that several of them in his upper jaw were much decayed. I directed them to be extracted, and advised him afterwards to loose a few ounces of his blood * * * . He

* Medical Inquiries, etc., by Benj. Rush, Vol. I., pg. 197. 1818.

followed my advice, in consequence of which I had lately the pleasure of hearing from his brother the he was perfectly cured. * * * * I cannot help thinking that our success in the treatment of *all chronic diseases* would be very much promoted by directing our inquiries into the *state of the teeth in every case.* * * * * It is not necessary that they should be attended with pain, in order to produce diseases."

The important relationship of oral sepsis to internal medicine, so clearly pointed out in terms of almost uncanny reality by Dr. Rush, more than one hundred years ago, long before the understanding of microbic origin of disease, the cultivation of micro-organisms, the selective action of germs, and the classification of these organisms, seems unfortunately to have unimpressed the doctors of succeeding decades until about ten years ago, when the modern conception of this important relationship was acquired. Now, beyond a possibility of a doubt, although the mills of science in proving facts grind exceeding slow, internal medicine, as a specialty, has been greatly advantaged by this now established etiologic relationship.

In the locomotor system, probably we see the most frequent metastases of teeth infections. Metastatic infectious arthritis may arise not only from teeth infections but also from tonsils, paranasal sinuses and mastoids. Hypertrophic osteo-arthritis, seen in older people, may result from periapical granulomata. One's disappointment in at once not getting improvement in joints, after the extraction of teeth found to be diseased, is extremely great, but how may we be expected always to get relief in secondary osteo-arthritis by the late removal of a primary focus? In addition to joint metastases, there may be infection of tendons, fasciae, bursae and fibrous tissue about the joints, which seriously impair function of the joint.

Disease of the circulation secondary to oral sepsis may show itself in acute infectious endocarditis in the young, and sub-acute infectious endocarditis or endocarditis lenta in the adult. Also, the muscle function of the heart may be markedly affected by an infected mouth. This has been observed frequently by the writer in treating heart affections in cases of extrasystolic arrhythmia. Arterial disease, increased blood pressure, and low blood pressure are, likewise, not infrequently influenced by the infectious condition of teeth.

Diseases of the blood and the blood-making organs are also a frequent sequel of oral infection. This is seen in the anemias. The diseases of the stomach seem to bear a like relation often times. Infections of the stomach and the functional disturbance of it may be begun by oral sepsis, and ulcer of that organ or duodenum may be finally accomplished by infection from diseases of the mouth.

So, in the uro-genital system where there is glomerulotubular nephritis, pyelitis, prostatitis, etc., this role of the primary infection from the mouth may be played.

In the diseases of the nervous system, oral infection may quite frequently serve as the primary focus. Multiple neuritis, chronic neuralgias, trigeminal neuralgia, intercostal, brachial, sciatic neuritis, may be enumerated as illustrations. Sciatica, in the writer's experience, is not infrequently associated with arthritis of the sacroiliac joint and, while extremely difficult to relieve, is associated with chronic infections of tonsils or teeth.

The diseases of the endocrine and metabolic systems, as seen in thyroiditis and Graves's disease, are also affected by oral sepsis. Their relation to ovarian abscess has not been established, nor has their relation to diabetes resulting from necrosis of the pancreas. There is an undoubted causal relationship to the trachitis and bronchitis. The writer has frequently relieved recurrent non-tuberculous cough by having diseased teeth extracted, or chronic infection of the tonsils or paranasal sinuses cleaned up.

News Notes

The Virginia Society Of Oto-Laryngology And Ophthalmology

Held its first regular meeting in Richmond on February 3, with a very large proportion of the eighty odd Virginia specialists in these branches in attendance. An organization meeting was held in Petersburg in October last, during the meeting of the Medical Society of Virginia, and the following officers elected at that time continue in office for the first year: President, Dr. H. H. McGuire, Winchester; vice-president, Dr. Wm. F. Mercer, Richmond:

secretary-treasurer, Dr. C. S. Dodd, Petersburg. The three members of the Council elected at the Richmond meeting are Dr. John Dunn, Richmond, for one year; Dr. James Morrison, Lynchburg, for two years; and Dr. R. F. Compton, Charlottesville, for three years.

The paper for general discussion was read by Dr. John Dunn, his subject being the "Etiology of Glaucoma Simplex." This was an excellent paper and was freely discussed. Papers were also read by Drs. Elbyrne Gill, Roanoke; Geo. J. Tompkins, Lynchburg; D. A. Kuyk, Richmond; Wm. C. Moomaw, Petersburg, and J. A. White, Richmond. The invited guests, Dr. G. E. de Schweinitz, Philadelphia, and Drs. Hiram Woods and Jas. Bordley, Jr., Baltimore, read their papers at the evening session, which was followed by a smoker.

The next meeting is to be held in Lynchburg in October.

Cancer Committee Formed In Cincinnati.

Recently there was inaugurated in Cincinnati a movement for an intensive educational attack on cancer. The work of the organization will be undertaken by a committee of fifteen, of which Dr. J. Louis Ransohoff is chairman. They have entered upon their work with zest and much is expected of them.

In connection with the above movement, we regret to note that Virginia has not taken a more active interest in the fight for the control of cancer. Thirty-two states, the District of Columbia and Hawaii have all organized for this work. It is not too late for us to awake to the importance of this subject and the sooner the better. State and municipal committees should be appointed to "carry on" the fight against cancer. "If we are to stay the ravages of cancer, we can no longer reverence a silence which obstructs, rather than advances progress in early diagnosis and treatment. Wonderful strides have been made in the control of tuberculosis. Cancer, too, will yield to modern medical science, once the adult people understand the elementary facts."

Health Hazards In Occupations.

The U. S. Public Health Service is making investigations into the causes of many occupational diseases and much good is being accomplished thereby. The object of the work is to reduce sickness, accidents, absenteeism, and labor turnover, and thereby to obtain increased efficiency and greater economic prosperity for both workers and employers.

Study of working conditions involves investigations of processes of production, medical and surgical care, sanitation of camps, and food supply. Study of reactions includes investigations into the economic condition of the residents, prevalence of transmissible diseases, malaria, venereal infection and possibilities of soil pollution.

Dr. J. Burton Nowlin

Has been re-appointed coroner of Lynchburg, Va., for another term of four years.

Dr. Russell S. Wingfield,

Of Richmond, who since his graduation from the Medical College of Virginia last June has been serving an internship at Stetson Hospital, Philadelphia, has sailed for Paris, where he will be associated with the American Red Cross. He expects to spend a year in the reconstruction work being done by this organization, after which he plans to return and make his home in this city.

"Certified" Water.

Within the last twelve months the danger to railway travellers of infection with typhoid fever, dysentery, and other water-borne diseases has been reduced to a minimum throughout the greater part of the country by the cooperation of the U. S. Public Health Service with the different State boards of health, in the testing of the water used on railway trains for drinking and cooking. Within the next few months, similar protection will be afforded to passengers on river and lake steamers and to ocean steamships sailing from American ports. This will tend to end the severe outbreaks of typhoid fever that have from time to time been traced to ships (especially to excursion boats) as well as to the probably more numerous but far less easily traced illnesses of railway travellers from similar pollution.

According to Surgeon General Cumming, this work is the culmination of a plan decided upon last June, at the convention of State and Territorial Health Officers, in Washington, D. C., whereby the Service was to co-operate with the States in reducing typhoid fever either by sending them sanitary engineers to investi-

gate their water supplies or by helping them to organize State divisions of sanitary engineering to look after the work.

Va. Section, American Society of Bacteriologists.

There has recently been established a Virginia Section of the American Society of Bacteriologists. The meetings are held in the library of the Medical College of Virginia, Richmond, on the second Friday of each month. Anyone interested in bacteriology may join by communicating with the secretary, Dr. E. C. L. Miller, at the Medical College.

The January program was a report by Mr. A. H. Straus on the national meeting in Chicago in December. The subject for discussion at the February meeting will be on the new methods for titrating culture media. The theoretical aspects will be presented together with their practical application after which there will be the usual general discussion.

Danville Physician Has Gone To Poland.

Dr. Samuel Newman, who has been connected with the Danville, Va., Health Department, sailed on January 19, as a member of the staff of Dr. Harry Plotz, to go abroad on a mission of medical relief in central and eastern Europe. Headquarters of the unit will be in Paris. It is composed of twenty American specialists. Dr. Newman expects to work especially with child relief problems in Poland.

This medical relief unit is financed by the joint distribution committee of the American Funds for Jewish War Sufferers; $2,000,000 has been appropriated for its work, and they will closely co-operate with the European Relief Council, which is working in behalf of the children in the devastated sections.

Dr. Henry A. Wiseman,

Of Danville, Va., has been appointed a member of the State executive committee of the Virginia Department of the American Legion, to represent the fifth district.

Dr. Moir S. Martin,

Formerly of this State but now of Mt. Airy, N. C., was elected secretary-treasurer of the Surry County (N. C.) Medical Society, at its last quarterly meeting.

Dr. Clifton M. Miller,

Of Richmond, was one of the speakers at the semi-annual meeting of the Matthew Fontaine Maury Association, held in this city January 15.

Dr. R. R. Hoskins,

Of Mathews, Va., went to Baltimore early in January to take a post-graduate course in medicine.

Dr. Virginius Harrison,

Of this city, has resigned as president of the Board of the R. E. Lee Camp Soldiers' Home.

Officers Of St. Luke's Hospital, Bristol.

Dr. George E. Wiley was elected president of the new corporation which has taken over the operation of St. Luke's Hospital, in Bristol, Va., and Dr. N. H. Reeve was elected secretary and treasurer.

Dr. E. C. L. Miller,

Of the Medical College of Virginia, Richmond, spoke on "Hydrogen Ion Concentration and Its Determination" at the meeting of the American Chemical Society in this city, January 21.

Hot Springs, Ark., Must Eliminate Red Light District.

We note from *The Social Hygiene Bulletin* that the U. S. Public Health Service, through its Department of Legal Measures, Division of Venereal Diseases, has advised Hot Springs officials to take measures to elminate its "red light" district and thus stop prostitution under penalty of the quarantining of persons from other states who come to that city for the cure. It is further noted that some of the Hot Springs physicians have failed to report their venereal disease cases to the State Board of Health according to law. To correct this practice, it has been stated that any doctor who refuses to report his cases will be stricken from the Federal registration list, which will make him ineligible to prescribe the baths, as they are United States property and can be prescribed only by those doctors on the Federal list. Since the passage of this measure, there is already an improvement in the reporting of cases.

Knighthood Conferred On Medical Editors.

Dr. Squire Sprigge, editor of the *Lancet*, and Dr. Dawson Williams, editor of the *British Medical Journal*, received the honor of knighthood from King George, of England.

on New Year's day, in recognition of their work as medical journalists and authors.

Honor Memory Of General Gorgas.

The Latin American nations joined with the United States, England and France on January 16, in paying tribute to the memory of the late Major General William Crawford Gorgas, former surgeon general of the U. S. Army, and leader in the successful fight against yellow fever. The meeting was held under the auspices of the Southern Society of Washington, of which General Gorgas was a former president. As a tribute to his memory, the Society will present the government with a portrait of General Gorgas to be placed in the library of the Surgeon-General's Office. It was announced that Congress will be asked to make an appropriation for a suitable memorial of General Gorgas to be placed in Washington.

Dr. J. Garnett Nelson,

Of this city, was on the first of this month elected president of the Richmond Tuberculosis Association. Doctors who are members of the board of directors are: Drs. E. C. Levy, P. D. Lipscomb, E. C. L. Miller, N. Thomas Ennett and C. C. Hudson.

Dr. Walter C. Klotz,

Of Blue Ridge Sanatorium, Va., on February 3, gave the first of a series of lectures on "The History of Tuberculosis," at a joint meeting of the Richmond Nurses' Club and the School for Social Work and Public Health.

Dr. D. D. Talley

Has returned to his home in this city, after a visit to Atlantic City, N. J.

Congress On Medical Education, Licensure, Hospitals and Public Health.

The annual Congress on Medical Education, Licensure, Hospitals and Public Health will be held in the Florentine Room of Congress Hotel, Chicago, March 7, 8, 9 and 10. A number of papers by men of international prominence will be presented at this Congress.

Retreat For Sick, Richmond, Has Formal Opening.

The Retreat for the Sick, this city, which was opened for the reception of patients about the first of December, had its formal opening, January 20. The hospital was open to visitors from 11 a. m. until 5 in the afternoon, and special exercises were held at 3 p. m. More than $284,000 was spent in equipping the hospital as it is today and it has every modern device known to science. The Retreat was founded in 1877 and, during its first year, housed 165 patients. Now, it can care for more than 100 a day. This hospital was founded by Mrs. William A. Jenkins, upon the suggestion of the late Dr. Hunter McGuire, and to women is largely due the successful management of this institution.

Dr. Alfred Gordon,

Of Philadelphia, who has frequently contributed to our pages, has been elected a member of the Neurological Society of Paris, France.

Dr. G. G. Rhudy,

Who practiced in Stonega, Va., prior to entering the service of the army about three years ago, is at present in Chicago, where he is taking a special course in eye, ear, nose and throat work.

Dr. E. E. Walker,

After practising for a number of years in Appomattox County, Virginia, has located at Algoma, W. Va.

Proposed Orthopedic Hospital For Richmond.

Drs. William T. Graham and McGuire Newton, both of Richmond, spoke before the Kiwanis Club in this city, at a recent meeting, on "The Proposed Orthopedic Hospital for Richmond." The plan is being boosted and Richmond hopes in the near future to have an orthopedic hospital.

Dr. Keen Honored.

Dr. William W. Keen, of Philadelphia, the Dean of American Surgery, was given a banquet followed by a reception at the Bellevue-Stratford Hotel, Philadelphia, January 20. This was tendered by a number of his professional and other friends in celebration of his eighty-fourth birthday. On this occasion, also, a life-sized bronze bust of the Doctor was presented him by those participating. This was a tribute of esteem to one of Philadelphia's foremost citizens and one of America's most renowned surgeons.

Some Patent Medicine Makers To Be Deprived Of Alcohol.

It is announced from Chicago, that the prohibition director for that district will refuse al-

cohol deliveries to manufacturers of several well-known patent medicines. The ones indicated are said to have done business on a grand scale since the advent of prohibition. Mr. Stone, the director, estimated that in Illinois alone, during the last six months of 1920, his office issued 5,000 permits to manufacturers of patent medicines to obtain alcohol.

Dr. Addison B. Householder

Has returned to his home at Lovettsville, Va., after a visit to friends in Washington, D. C.

Maj. Thos. R. Marshall, M. C., U. S. A.,

Formerly of Ware Neck, Va., is at present stationed at Ft. Screven, Ga.

Peoples Hospital, New York, To Have Larger Quarters.

The Peoples Hospital, of New York City, now situated at 203 Second Avenue, with a capacity of 50 beds, has purchased a site on East Fifteenth Street for a million dollar hospital, in which accommodations will be provided for 500 patients. It will probably be two years before the new building will be ready for occupancy. The old hospital site will then be used as a dispensary.

Dr. E. S. Barr,

Of the class of '16, Medical College of Virginia, after several months at Cromwell, Conn., is now connected with the Health School, Philadelphia Hospital, Byberry, Philadelphia.

Dr. E. H. Marsteller,

An alumnus of the Medical College of Virginia, and recently of Sheepshead Bay, N. Y., has returned to his former home in Prince William County, Virginia, where he will practice his profession.

Fire Destroyed Part Of Sanitarium.

On January 7, fire destroyed several sections of Dr. Allen's private sanitarium at Milledgeville, Ga. More than a hundred patients, many of whom were wounded soldiers, were carried from the burning buildings.

Dr. Clarence E. Yount,

Of Prescott, Ariz., has been the recent guest of relatives in Loudoun County, Virginia.

Dr. W. R. Cushing,

Of Dublin, Va., was elected chairman of the board of directors of the Bank of Dublin, at its annual meeting in January.

Dr. and Mrs. Charles R. Irving

Have been spending the fall and winter in Buckingham County, Virginia.

Richmond To Have U. Of Pa. Alumni Chapter.

Steps have been taken to form in this city a chapter of the University of Pennsylvania alumni. Drs. Fred M. Hodges and G. Paul LaRoque are among the physicians interested in this project.

Married—

Dr. Joseph M. Holloway, Port Royal, Va., and Miss Fannie C. Gordon, of Spotsylvania County, Va., January 19.

Dr. James Moncure Bland and Miss Grace Knight, both of Boykins, Va., January 18.

Dr. Charles B. Crawford, of Washington, D. C., an alumnus of the University of Virginia, and Miss Joyce Ince, of Toronto, Canada, January 22.

Dr. Berte O. Edwards, Asheville, N. C., and Miss Emorie Doughton, N. C., in Washington, D. C., recently.

Dr. Lucius G. Gage,

Of Chester, S. C., a member of the class of '15, University of Virginia, Medical Department, has become associated in the practice of medicine with Dr. Brodie C. Nalle, of Charlotte, N. C.

Dr. Guy S. Kirby,

Of Marion, N. C., has been elected health officer of McDowell County, N. C. Dr. Kirby has many friends in this State, having studied medicine at the former University College of Medicine in Richmond.

Medical Society Of D. C. Has New Home.

The new home of the Medical Society of the District of Columbia, at 1718 M Street, N. W., Washington, was dedicated on January 12, on which occasion addresses were made by Dr. William Gerry Morgan, the retiring president, and by Dr. Chas. W. Richardson. The building is a handsome one. Its auditoium has a seating capacity of nearly 500. The second floor is to be used as a library.

The American Congress On Internal Medicine

Is to hold its fifth annual session in Baltimore, Md., February 21-26, 1921, inclusive. It is expected at this meeting that much clinical work will be demonstrated by members of the medical faculties of Johns Hopkins and Mary-

land Universities. Information may be obtained of the secretary-general, Dr. Frank Smithies. 1002 N. Dearborn Street, Chicago.

Dr. John J. Terrell,

Of Lynchburg, R. D., Va., was in January re-elected surgeon to the Garland-Rhodes Camp, United Confederate Veterans.

Tuberculosis Patients Transferred To The East.

All the hospitals and contract hospitals of the U. S. Public Health Service in the semi-arid southwest are already crowded with tuberculosis patients and the influx of others from the Eastern States continues so great that the Public Health Service has been forced to transfer patients from Tucson, Ariz., and other Western hospitals to sanatoriums near Asheville, N. C., and elsewhere in the East.

Many ill-advised patients have of late thronged to Tucson, unmindful of the fact that every hospital bed in that place is filled and every hotel and boarding house overcrowded. More than 500 tuberculosis subjects in Tucson are unable to find entrance to a sanatorium. Other towns in the Southwest report similar conditions.

Surgeon General Cumming renews his warning against tuberculosis patients leaving sections where the government is able and willing to care for them and going to the southwest on their own initiative.

Dr. Wade H. Carter,

Of Eggleston, Va., announces that after January 26, his offices will be located in East Radford, Va.

Public Health Meeting To Be Held In Petersburg.

At the last quarterly meeting of the Southside Virginia Medical Association, in Suffolk, "On motion duly seconded and unanimously carried, it was decided to have a public health meeting at the night session of the next meeting (in Petersburg, in March), and Dr. E. M. Mann, of Kenbridge, was appointed to arrange for this meeting and provide speakers."

Dr. Alfred S. Grussner,

Of Brooklyn, N. Y., who enlisted in the naval service of the war, upon his graduation from the Medical College of Virginia in 1918, is now located at 631½ Afton Parkway, Portsmouth, Va.

The Rockingham Memorial Hospital,

Harrisonburg, Va., reported a most successful year, at its annual meeting last month. During 1920, there were admitted 1,109 patients. It was reported that improvements and additions to the hospital building, costing approximately $45,000, were nearing completion. When this addition to the hospital is equipped, it will double the capacity of the hospital. It was decided by the board of directors to appoint a business manager for the institution to assume part of the responsibilities of the superintendent.

The State Conference Of Charities And Corrections

Will hold its annual meeting in Norfolk, April 10-13. It deals with the problem of the abnormal, sub-normal, delinquent, and defective classes of society, and is especially interested in constructive and preventive measures and policies looking to the reduction and elimination of many of the social evils from which society suffers.

Men or women interested in this work may secure further information with regard to the meeting from Dr. J. T. Mastin, Richmond, who is secretary of the Virginia State Board of Charities and Corrections.

Dr. T. J. Stanley

And family, of Farrington, Va., have moved to Montpelier, Va., to be near the high school.

Dr. L. B. Moore,

Recently of Glamorgan, Va., advises that he has moved to Proffit, Va.

Dr. John E. Cole,

Of Alberene, Va., is spending the winter at Ft. Myers, Fla.

More Habit-Forming Drugs Seized.

Officers of the U. S. Customs Bureau, New Orleans, on January 22 arrested three members of the crew of a steamer which plies between that port and Vera Cruz, and seized $45,000 worth of habit-forming drugs found in their possession. The men were charged with smuggling and violating the Harrison narcotic drug act.

Chesterfield County Forms Health Unit.

Beginning with February, Chesterfield County, Virginia, commenced upon a new program of health work. For more than a year,

the State Department of Health and the U. S. Public Health Service have been co-operating with the county in its sanitary work. Now, the local Red Cross has rented headquarters at Chester, has employed its own county nurse, and has formed a county health association which will endeavor to co-ordinate all local health activities.

Dental Clinics At Minimum Cost.

A report just published by the Albemarle County, Va., Health Department shows that dental clinics may be held at a minimum cost. The total cost of clinics in this county for six months was $508.14 and several hundred people were treated. Those who could afford it paid a small sum for attention; others paid nothing. Amalgam fillings cost 50 cents each; cement fillings, 30 cents; extractions, 25 cents; cleaning and polishing, 50 cents. At these rates, it is possible the dental clinics will soon have more work than they can handle.

Memorial To Sir Victor Horsley.

It is intended by the friends and former colleagues of Sir. Victor Horsley to commemorate his services to science by founding a lectureship or scholarship bearing his name. Subscriptions to raise the necessary fund are being solicited under the chairmanship of Sir Charles Ballance.

Income Tax.

The professional man will find a few more complications confronting him in making his income tax returns than the salaried man. If not familiar with the way in which the returns should be made, make inquiry now before the rush. Returns have to be filed on or before March 15, 1921, at which time the tax must be paid either in full or the first of four installments should be turned in.

Federal Control Of All Quarantines.

As soon as proof of title to the premises can be furnished by the State of New York, the U. S. Public Health Service will take over the last of the states' quarantine stations. A number of the states, Virginia included, maintain a quarantine nucleus upon which a service might be built should the government service prove inadequate. In 1893, Congress passed a law providing that the Federal government might acquire the seaport quarantine stations of such states as were willing to sell. Owing to the great diversity of opinion then prevailing as to facts in regard to the transmission of plague diseases, the states were slow to dispose of their stations, preferring to use the wisdom of their own doctors rather than trust to the judgment of government physicians. Knowledge of epidemic regulation and control is now virtually exact, and so, after twenty-seven years, the government is about to acquire sole control of all these stations.

Planning To Aid Mouth Hygiene.

At the fifty-seventh anniversary of the Chicago Dental Society, on January 27, there was inaugurated a nation-wide movement having for its primary object the betterment of mouth conditions in the child, by means of instruction in the schools. Plans were discussed for the establishment in large cities of dental infirmaries.

Public Health Service Institute.

The nature of the attendance at the institute of the Public Health Service on venereal-disease control, recently held in Washington, furnishes striking evidence of the fact that modern warfare on disease is not exclusively, nor even chiefly, medical. Prevention, in disease as in everything else, is now considered even more important than treatment; and prevention is very largely a social problem, in solving which every class of the community has its part. Thus, the institute, which conducted two-weeks' intensive training for 511 medical men and women and social workers, who had come from all parts of the continent to familiarize themselves with the recent marvellous advances in both the medical and the social aspects of the twin diseases, had among its students more than a hundred physicians of high standing, 48 directors of clinics, 47 nurses, 22 police women, 15 educators, and about 50 national, state and city health officers, editors, travellers-aid secretaries, athletic directors, Y. M. C. A. secretaries, and representatives of other important social agencies.

Psychologist, Biologist and Bacteriologists Wanted By Government.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examination for psychologist, receipt of applica-

tions to close March 15, 1921. There will also be open competitive examinations for bacteriologist; associate bacteriologist; assistant bacteriologist; and junior bacteriologist. Applications for these positions will be rated as received until July 1, 1921. Applications for the open competitive examination for biologist will be received until March 15, 1921.

All citizens of the United States who meet the requirements, both men and women, may enter these examinations; appointing officers, however, have the legal right to specify the sex desired in requesting certification of eligibles.

For detailed information as to qualifications, etc., address the Commission.

Wanted—

Medical graduate, qualified to take charge of growing health department laboratory and dispensary work, including V. D. clinic; salary $2,400. State training and experience.

Also nurse for child welfare work; salary $1,500.

Address R. W. Garnett, M. D., Health Officer, Danville, Va.—(Adv.)

Obituary Record

Dr. Haller H. Henkel,

A prominent physician of Staunton, Va., died January 17, at the age of 68 years. He was born in New Market, Va. Upon completion of his academic education, he studied law at the University of Virginia and later medicine, graduating in the last named in 1877. He then went to New York where he obtained the M. D. degree from the University of New York in 1878. After an internship served at Bellevue Hospital, he returned to Virginia where he had since made his home and practiced his profession. He became a member of the Medical Society of Virginia in 1885. His wife and a daughter survive him.

Dr. Edward Herbert Thompson,

Of Bluefield, W. Va., died on December 14. His death was the result of an accident in which his automobile was struck by a street car, from which he suffered a fracture of the skull and internal injuries. He was forty-three years of age and a graduate in medicine from Johns Hopkins University in 1905. Dr. Thompson was prominent and popular in West Virginia and the southwestern section of Virginia. He was a member of the Staff of St. Luke's Hospital, Bluefield, and a councilor of the West Virginia State Medical Association.

Lt. John C. Taylor, M. C., U. S. N.,

Stationed at the naval base, Norfolk, Va., was killed on January 30, owing to failure to answer the challenge of a sentry. He was in a closed car and it is thought did not see or hear the sentry who was stationed at the approach to an area where the storehouses are situated.

Dr. Taylor was a native of Greenville, N. C., and about 28 years of age. He graduated from the Medical College of Virginia in 1917, and was one of the graduates who immediately entered the naval service during the war. He was exceedingly popular and his untimely end was a shock to his many friends.

Dr. Hampson Hubert Biedler,

A native of Luray County, Virginia, but for many years a practising physician of Baltimore, Md., died in that city January 30, aged 66 years. Upon graduating in medicine from the University of Maryland in 1876, Dr. Biedler first located for practice in Rappahannock County, Va., later going to Baltimore, where he became associated with Dr. Wm. A. B. Sellman, and established the Biedler-Sellman Sanatorium.

Dr. Godfrey Roger Pisek,

Of New York City, a prominent specialist in pediatrics, died suddenly in an elevated railway station on January 19, at the age of 47 years. He was a graduate of New York University Medical College in 1897. Dr. Pisek was professor of pediatrics at the New York Post Graduate Medical School and Hospital and visiting and consulting physician in his specialty to various hospitals. With Dr. Henry D. Chapin, he was co-author of a textbook on diseases of children, and was a contributor to various medical journals on his specialty.

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Original Communications

ENDOCRINE SECRETIONS.*

By H. W. PHILLIPS, M. D., Norfolk, Va.

In essaying to present this subject, I do so with the hope of stimulating a greater interest in a branch of science which has been fraught with opposition and skepticism, but, like all important discoveries, has survived the most adverse criticism.

More than fifty years ago, Claude Bernard and Brown-Sequard, French physicians, made the first discoveries in this unexplored field of internal secretions, though Bordeau, in 1775, advanced the idea that each organ prepared a substance which it discharged into the blood and which substance, he stated, was useful to the organism and necessary for its integrity. Bordeau and others had glimpses of the unknown territory of internal secretions, but it remained for Bernard and Brown-Sequard to blaze the real paths for the countless investigators who were to follow.

More venturesome spirits forced their way through the jungle of physiological and clinical phenomena and many others followed in their footsteps. New paths were beaten, new vistas unfolded and, as in the history of every unexplored field, each forward step brought a broader viewpoint. Today we have a world of useful information with highways and byways radiating in every direction and leading into the dark places of this wonderful phenomena.

Gradually, but surely, the domain of the ductless glands and internal secretions is extending and, if the achievements of the past few years be taken as a criterion, there may soon be forthcoming information pertaining to prophylactic and curative measures that will give earnest thinking medical men greater dominion over disease.

It has now become a matter of definite knowledge that the function of the internal secretions, with their complementary and reciprocal relations to each other, promotes that perfect mechanism which is necessary to maintain physiological activity and equilibrium found in health. And any dyscrasia of these secretions, or disturbances of this "harmone balance," is accompanied with a certain syndrome which constitutes disease.

For a proper interpretation of this subject it will be necessary to briefly review the more important of these ductless glands by pointing to their "excess" and "deficiency" of secretions, and laying emphasis upon the results of the administration of the extracts of these glands.

Naturally, the thyroid gland first deserves our attention, because more is known of its characteristics, secretions, functions and disorder; then again the frequency with which disorders of its functions are encountered, and finally the extent to which the extract of this gland has been utilized with such astonishing good results. From the time when G. R. Murray published the results achieved by administering "Thyroid Extract" to a patient suffering of myxedema (Oct. 10, 1891), great interest has been aroused in the practice of Organotherapy.

The thyroid gland belongs to a group of ductless glands and its secretion is poured into the blood stream direct. This secretion, iodothyrin, is a typical colloid substance composed of iodine in combination with an active principle which has the characters of a globulin. This colloid plays an important part in bodily metabolism. Herbivora possess it in abundance as most vegetables contain iodine.

In considering the function of the thyroid gland, it is well to say that it first possesses a peculiar property not shared by other endocrine glands so far as is known, that of being able to store its own secretions. This is proven by the fact that in its absence (thyroidectom-

* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

ized animals) its secretion can be replaced by artificial ingestion of the Thyroid Extract. Naturally we turn to the colloid as being the stored up secretion, and, indeed, we are justified in so doing as there is evidence to show that this substance exists as droplets in the epithelial cells lining the vesicles.

Phagocytic and antitoxic properties have been ascribed to the secretion of the thyroid due to the relatively large per cent. of iodine (2%) it contains. The thyroid is concerned with growth of bone, the development of the body and with a normal circulation.

For lack of time, hyper and hypothyroidism will be considered jointly for, as their name implies, their syndromes are quite the opposite, being due to excess or deficiency of iodothyrin in the blood stream.

In hyperthyroidics (Graves's disease or exophthalmic goiter) we have a variable chain of the following symptoms:—Exophthalmos, tachycardia, tremor, nervous instability, hyperthermia, hypertrichosis, cutaneous humidity, diarrhoea and psychic changes, enlargement of thyroid and accelerated nutritive changes with loss of weight. Of these, rapid cardiac action (pulse 120-160) is by far the most constant and may be regarded as the fundamental sign, for there may be absence of any of the other symptoms.

In hypothyroidism (myxedema or cretinism) we have insufficient iodothyrin with diminished nutritive changes and increase in weight, hypothermia, bradycardia, skin dry and rough with scarcity of hair, especially of eyebrows, over-active kidneys and nocturnal enuresis, bowels costive, muscular asthenia and premature senility with mental torpor and atrophy of the thyroid.

In cretinism there is stunted growth and the sexual organs remain undeveloped. With these outlined symptoms of disturbed function of the thyroid we will briefly consider TREATMENT. First, hyperthyroidism with its excess iodothyrin is benefited by those agencies which lessen or tend to neutralize the secretion. Besides local applications and medicinal agencies might be mentioned prolonged use of X-rays, as Hector Mackenzie relates the case of Graves's disease which under roentgen therapy was converted into a typical case of myxedema. In all, thirty-six treatments were required, extending over a period of four years. Mackenzie considers that the reason X-rays have not yielded better results is because it has not been persevered with sufficiently long. Water, of the "goiter wells," by depriving the body of iodine by forming a combination with it, rest, diet (vegetable free), hygiene, cardiac and systemic tonics are beneficial. Also preparations from thyroidectomized animals (antithyroidin) have been used, but results have not been altogether satisfactory. Removal of the greater portion of the gland (thyroidectomy) has yielded excellent results.

In the treatment of hypothyroidism (myxedema) we need only consider the one remedy, thyroid substance, and the technique of administering, as this drug may be looked upon as infallible. Whether of childhood, or adolescence, the feeding of thyroid substance judiciously is followed by prompt response. It is better to begin with the smaller doses, ¼ to ½ grain, t. i. d., and gradually increase, especially in the milder cases where there may be doubt as to diagnosis. In those cases more marked, larger doses may be used in the beginning, 1 to 3 grains t. i. d. Each case must be treated on its individual characteristics, being careful to consider the duration and degree of thyroid deficiency, and the alterations in the patient which this has produced. Careful watch must be kept of temperature, pulse and weight, because mainly on these points, the supply of Thyroid Extract is regulated.

A word of warning before dismissing the subject of treatment. The prescriber must be able to rely upon his preparation. The article must be fresh, the percentage composition constant, and it must contain the due proportion of iodine. If the patient fails to react, we must remember that the quality of the drug may be at fault and not the diagnosis.

With regard to pituitary secretion: As in discussing the thyroid gland, the terms hyper and hypo were used respectively with reference to excess and deficient secretion, so, with the hypophysis cerebri, we adopt this division to express the kinds of faulty functioning of this gland.

The best recognized disease associated with this organ is that to which Marie gave the name "Acromegaly." It is believed the disease owes its origin to hyper-secretions of the pituitary. Often in this disease, a skiagram will show the sella turcica to be definitely enlarged due to glandular swelling.

With hypo-pituitarism, as might be expect-

ed, there are symptoms the opposite of those typical of hyper-pituitarism and these bear a marked resemblance to the myxedema syndrome. They are subnormal temperature, slow pulse, low blood pressure, mental sluggishness with tendency to somnolence, the stature is small (if the disease begins before adolescence), adiposity excessive, sexual development delayed or deficient and tendency to femininity (hair on pubes being more localized and that of head more abundant), sweat is deficient, and there is a high tolerance for sugar but, unlike myxedema, the skin exhibits a smooth even texture. Shafer says, "The anterior lobe has to do chiefly with the stature, while the posterior lobe is concerned with carbohydrate metabolism."

As regards treatment of excess pituitary secretion, it is only necessary to say that in extreme enlargement, as in the formation of an adenomatous struma when neighboring symptoms have arisen, it becomes a matter of surgical importance.

Fortunately, the evidence points to hypersecretion as being transitory and often changing to hypo-secretion, so we must treat the early stages of this condition with care and watchfulness.

Subsequent hypo-pituitarism may be met by organotherapy. As is the case with other glands of internal secretion, organotherapy is most efficacious in the deficiency syndromes:— Extract of the "whole gland" in regulated doses, 6 grs. daily and up, being careful to note the blood pressure readings from time to time. Thus, a boy, exhibiting hypo-pituitarism in a marked manner, underwent "complete mental, moral and physical awakening upon the administration of 18 grs. of the "whole gland preparation," daily.

In cases of "dystrophy adiposogenital," "anterior pituitary lobe" is of greatest value and, in combination with "Thyroid Extract," it has the effect of redistributing the fat, and promoting functional activity of the sex glands, thus correcting anomalies due to hypoplasia of the genitalia.

Among the glands of the chromaffin system which occupy most attention are the adrenals; and the disease attributed to disturbed function of these organs is known as Addison's disease. The snydrome of this is that of deficiency of secretion and present symptoms of anorexia, subnormal temperature, cold extremities, vertigo and syncopal attacks, muscular asthenia and atony, and characteristic pigmentation of skin.

Adrenalin administration has been of little service in promoting cures in these cases, probably due to the destructiveness of the disease with which these organs are usually affected. However, beneficial results have been obtained and instances of cures reported, by giving 2 or 3 grains of the desiccated gland substance t. i. d. Adrenal opotherapy not only makes up for the deficiency of the secretion but also leads to a compensatory hypertrophy which, to some extent, replaces lost glandular tissue.

For hyperadrenia, pancreatic extract may be given for its antagonistic effect, and in this manner, a normal balance may be obtained. The adrenals take part in the auto-protective function of the body. Administration of male fern followed by castor oil is strongly warned against, poisoning having occurred in cases of faulty functioning of adrenals.

It has been stated that adrenalin instilled in the eye of a depancreatized animal caused dilatation of the pupil which does not occur in the normal animal. This test has been used for its diagnostic value in pancreatic diabetes. The experience we have all had with such potent remedies as Thyroid Extract, Pituitrin and Adrenalin, has lifted them from the realms of doubt and skepticism and placed them prominently in our armanentarium as reagents of definitely ascribed physiological properties and therapeutic remedies of no little repute.

Other internal secretory organs deserve the same consideration here but time would not permit. However, I hope I have made clear some of the grosser lesions in which organic preparations can be employed with a prospect of success, and the morbid conditions in which such extracts should be prescribed.

But for lack of time, I should like to say some words of praise in honor of those worthy men who have suffered disappointment and rebuke, while stemming the tide of opposition in their effort to disclose the hidden secrets in this great research work.

In concluding, I wish to say that the Endocrine Secretions are fundamentally a functional part of the physiological property of the blood and to emphasize that, with its improved standardization technique, organotherapy is an established method of combating disease

and one which will form a large part in treatment in the future.

312 *Taylor Building.*

THE ROENTGEN RAY IN THE TREATMENT OF HYPERTHYROIDISM.*

By FRED M. HODGES, M. D., Richmond, Va.

The use of the roentgen ray in the treatment of toxic goiter is not a new procedure, it having had some strong advocates for some time. The first thorough and convincing work along this line has, however, been accomplished during the past three or four years.

Means and Aub,[1] of Boston, have studied a large series of cases treated medically, surgically, and by means of the roentgen ray. In every patient, careful records of metabolism, pulse, weight and general condition were made before, during, and after treatment.

They found a rapid fall in metabolism following surgery, but occasionally a subsequent rise in the rate; after roentgen ray therapy, a steady decline which, after two years, was practically the same as in surgical cases. In a few instances, the roentgen ray, seemed to have no effect. This was also true of some operated cases.

Using the basal metabolism as an index of toxicity, they concluded that:

1. In the majority of cases the results after two or three years are equally good with roentgen ray treatment as with surgery..

2. That after surgery, the metabolism shows a rapid preliminary fall, a secondary rise, followed by a final fall; that with roentgen ray treatment, there is a gradual, progressive fall.

3. That in securing the same end-results with surgery or with the roentgen ray, a lesser rest factor is necessary with the latter.

4. That patients treated surgically do better and the risk of operation is less, if they have previously had their thyroid and thymus glands irradiated.

5. That the risk of operation is greater and the need for pre-operative roentgen ray treatment greater where there is a high metabolism and moderate tachycardia, than in those with an extreme tachycardia and moderate metabolism elevation.

6. That the safest program for the treatment of toxic goiter, as a whole, is the routine irradiation of thyroid and thymus glands, in all cases, with surgery held in reserve for those who do not then do well.

7. That surgery is contraindicated with a patient whose metabolism is rising in spite of complete rest in bed, and also where there is moderate tachycardia and great metabolism increase, except when roentgen ray therapy had previously been applied to thyroid and thymus.

At the Massachusetts General Hospital, during the past three years, Holmes and Merrill[2] have treated about five hundred toxic goiters. Their results have been so generally good, that all of these are now referred to the internist and roentgenologist before surgery is considered.

They have reached the following conclusions:

1. It is possible to decrease the activity of the thyroid gland and probably to destroy its glandular structure by exposure to roentgen ray.

2. This treatment, when applied in cases of thyro-toxicosis, produces a relief of symptoms and shortens the course of the disease.

3. The roentgen ray, accompanied by rest, should be tried in all cases of thyro-toxicosis, and should be continued for a sufficient length of time to destroy at least the thymus, before resorting to surgery.

Waters[3] has shown by experiments on dogs that the x-ray, in moderate doses, produces a cloudy swelling in the thyroid cells. When larger doses are used, the cells show a coagulation necrosis, as seen in irradiated cancer cells. In a gland showing hyperplasia, this would undoubtedly be even more marked, since x-rays and radium rays act much more readily on cells of this type. Probably in mild goiter, before much, if any, hyperplasia has occurred, an induced cloudy swelling is all that is necessary.

It is a well known fact that the x-rays or radium rays will destroy the thymus gland in a short time. We have seen very large thymus glands so reduced in six weeks that no shadow or widening of the mediastinum could be shown with the fluoroscope or on plates.

Since September, 1919, we have treated thirty-seven cases of toxic goiter. Twenty-two of these have been under treatment long enough to be fairly certain of the result obtained.

* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

The latter series only will be discussed. The results obtained have been estimated through a study of the pulse, weight, nervous manifestations, and general condition of the patient. We regret very much that it was not possible to have metabolic studies made on these patients before and after treatment, and realize that the report is incomplete without this information.

This series, based on clinical results obtained, has been divided into three groups:

1. Those relieved of symptoms and clinical evidences of thyro-toxicosis, 12.
2. Those markedly improved, 7.
3. Those slightly, if at all, improved, 3.

In group 1, those relieved of symptoms and clinical evidences of thyro-toxicosis, twelve have been discharged practically well. All were females, ages varying from 18 to 64 years. All gained weight, varying from 5 to 40 pounds; average 14 pounds. Highest pulse, 134; lowest, 112; average, 118. All are now below 80. None of these at present time seems to have any symptoms of hyperthyroidism. There were two exophthalmic goiters in this group. In this group, a delay of more than three months is rarely necessary, if surgery should become advisable; and no case of this type has been reported as growing worse during this delay.

In group 2, those markedly improved, 7 patients, 3 were exophthalmic type: all females, ages 28 to 43. Pulse varied from 120 to 150; average 134. All have gained weight, from 4 to 26 pounds; average 11 pounds. The pulse has dropped in all but in 4. This still varies between 100 and 120. These are now probably very good surgical risks, but before treatment were not so considered by the surgeon in charge. In three, the pulse is now around 90. There has been a marked general improvement in each instance, the nervous manifestations becoming very much less evident. The three with a pulse around 90 can now be considered good results, and later, we hope they can be put in the group of excellent results.

In the third group, or those classified as slightly, if at all, improved, there were three patients, all women, with pronounced exophthalmic goiter. The pulse was 140, 150 and 170 for the three. The patient with the pulse of 170, now has a pulse rate about 150. The other two have not been affected by treatment. All have gained more than 20 pounds in weight, the general health being undoubtedly improved. In all three, the metabolic rate has in all probability been markedly reduced, but in two, the tachycardia has not been affected in the least, while in the third it has been affected only slightly.

It does not seem reasonable that the thyroid should be responsible for all of the tachycardia here. Some of the other ductless glands, as pituitary adrenals, etc., or a disordered nervous or circulatory mechanism must be largely responsible. However, none could be considered in the terminal stages of the disease, with marked heart, liver and kidney changes. Means and Aub reported similar cases where the metabolic rate was practically normal following roentgen ray therapy or surgery, but where the tachycardia persisted.

Before drawing any conclusions, we wish to make it clear that in the light of our present knowledge of this disease, we consider surgery unquestionably the choice of all methods, when the cases are thoroughly studied, carefully selected and competently operated.

From a study of this rather small series of cases, we believe that the following conclusions are probably justified:

1. Early mild, or questionably toxic, goiters should pobably receive roentgen ray therapy, before resorting to surgery, since in this way, an operation will frequently be found unnecessary.

2. In the slightly more severe ones, the best results seem to be obtained by surgery, providing the operation is done by a surgeon thoroughly experienced in this particular work.

3. All severe cases should receive roentgen ray treatment before operation, since a large percentage can certainly be made better surgical risks.

4. When the result following an operation is incomplete or unsatisfactory, the remaining toxicosis can frequently be cleared up by the roentgen ray.

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III. Chas. A. Waters. The American Journal of Roentgenology, December, 1919.

801 *West Grace Street.*

DISCUSSION.

Dr. Douglas VanderHoof, Richmond:—This paper of Dr. Hodges is very timely and brings up a very important point in the treatment of toxic goitre. The chief thing to be emphasized in the discussion of this subject is the relation of the enlarged thymus gland to cases of toxic goitre. It is difficult to determine the presence of a persistent thymus gland. Instances of sudden death after general anesthesia, particularly in goitre cases, are generally found to be associated with an enlarged or persistent thymus gland. This question of the relationship between the function of the thymus and symptoms of hyperthyroidism has yet to be worked out. X-ray treatment in goitre cases is marvelous in some instances. Dr. Talley has succeeded, in certain of my patients, in bringing about marked amelioration of symptoms in instances of hyperthyroidism. The patients who get well under X-ray treatment are probably the patients who have thymus enlargement. I think it is our duty in every case of hyperthyroidism that goes to the surgeon to insist upon preliminary X-ray treatment. In this way we can protect that patient against the danger of sudden death on the operating table by doing away with any thymus enlargement present. The statistics of the Massachusetts General Hospital are very encouraging. They have treated a very large number of cases and it will pay all of us to study their statistics. I am delighted that Dr. Hodges has brought this subject before us.

Dr. D. D. Talley, Richmond:—Dr. Hodges' paper is particularly in order at this time. Among the recent advances in x-ray therapy, the treatment of thyroid conditions holds a very important place. In spite of the superior results now obtainable, Dr. Hodges has been very conservative in hs conclusions and rightly so.

At present we cannot decide with precision whether a given case of hyperthyroidism is going to respond better to surgical treatment or radiation. A majority of such cases cannot be harmed by a thorough course of radiotherapy to determine what results may be obtained, before resorting to surgery. In the determination of immediate results the basal metabolism test is of value. Although the test has received a considerable amount of criticism, many observers who have had opportunity to use it in a large number of cases think it reliable for practicable purposes. At the Massachusetts General Hospital, for instance, they have made extensive observations on the x-ray treatment of thyroids and they place great reliance on the metabolism test in gauging the changes in the gland produced by each treatment. When it is found that the metabolism is approaching normal, it is a signal that the x-ray treatment should be stopped or given cautiously, as a deficiency in secretion may be produced by over treatment. The clinical improvement is apt to check up fairly closely with the decrease in the basal metabolism. Some harm has been done by radiating severe cases too vigorously at the start. Here, too, the metabolism test is of help, as such cases may be put on rest treatment or small x-ray dosage until the rate goes down to a point where there is no practical danger of too great toxin production.

My own results in these cases have not been perfect, but most encouraging. Sufficient time has not elapsed to state positively as to end results, but we are certainly justified in stating that the x-ray deserves an important place in the treatment of hyperthyroidism.

Dr. B. R. Tucker, Richmond:—I happen to have heard a great many papers and discussions on toxic hyperthyroidism,—one by Dr. Osler, in which he advocated the rest treatment. I have heard surgical papers in which surgery must be performed to effect relief; I have heard papers on serum treatment; I have heard discussions on the treatment of hyperthyroid conditions with radium; and also on X-ray treatment.

We are missing one point; that is toxic hyperthyroidism does not occur of itself. It is due to some underlying infection, most commonly the tonsils. We know of case after case in which toxic hyperthyroidism disappears after the removal of tonsils. Other focal infection may be the cause. In other words, I think we are attacking the problem in the middle and not in the beginning. I think therapeutic X-ray is quite often first advocated, but I do not think we should look upon it as the thing to first advise our patient to try. Make thorough investigation first as to what causes the toxic condition of the thyroid gland. Something causes it, even if we are not able to find it. Sometimes removal of the infected focus does not relieve the situation, and then it is that surgery or treatment by radium or X-ray is applicable.

FACTORS IN THE CONTROL OF METABOLIC DISTURBANCES.*

By WILLIS WILSON SILVESTER, M. D., Norfolk, Va.

In this paper, my idea is to try and emphasize that great things are to be had and realized in the way of aiding patients of all types in teaching them the maximum value of a few of the simpler rules of life; particularly in regard to avocation, rest, fatigue and diet. I mean the teaching of discretion in our daily living; in other words educate the people that (the old adage) "An ounce of prevention is worth a pound of cure."

Every patient entering your office should be told the value of so arranging his or her daily life so as to live below their mental or physical reserve. Usually, it means not one, but numerous talks with your patient. Some heed you, others do not. One pet mode I have of explaining to my patients that they are using their reserve is as follows: Suppose you on a salary of $100.00 per month are spending $105.00 per month, it would be only a relative short time before you would be beyond financial recovery. Then I compare this to their physical and mental life.

I do not feel that it is at all necessary to state how essential it is for every one of us to

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know what the average normal findings (clinical, physical, bacteriological, metabolic, etc.) should be in order to start our patients on the right road to recuperate. First, the physician must keep himself in trim, physically and mentally, in order to render the best possible service.

Few people in our work-a-day life engage their services in industry or other occupations which do not include an annual vacation. Strange as it may seem, medical men are not expected to take a vacation, at least from the viewpoint of the patient. We cannot, however, see the logic of such reasoning, because everyone is apt to become dull and uninteresting and lose their initiative in business when all work and no play is the rule.

The annual vacation for the physician should go hand in hand with the annual inventory, and whether the doctor takes his vacation at the same time that many do, namely, the summer, or uses the same number of days to attend his state or national medical meeting, is immaterial. Every man and woman should have a hobby and this hobby should take them away from the arduous duties of their work sufficiently long to rest the mind and body and give a renewed vigor and impetus to the work of the coming year. We can most assuredly recommend this vacation period as a most beneficial part of the education of the physician and his relation to his patients.

One of the fundamental dicta with regard to metabolism is that it increases with work or muscular effort. How large, comparatively, the increment may be is less well appreciated. The answer to the question has an important bearing on the food requirements of the working person; there is also a significant relationship of effort to energy expenditure in the case of the sick who need to conserve or gain. The doctrine of rest, either complete or limited, is one that the physician finds desirable to inculcate often. What is gained thereby in the mere conservation of food fuel or body tissues can be well understood by a consideration of what exertion really entails. The expenditure of energy in the body is affected by a number of factors, which include age, size, sex, and occupation. The loss of energy per unit of accomplishment is greater in those cases in which the worker is untrained and the muscles are unpracticed for their tasks. Fatigue also causes inefficient performance.

The activities of a recuperating or resting patient are comparable in some degree with the lightest types of housework. What this may mean in terms of energy has recently been described by Langworthy and Barott of the Office of Home Economics, U. S. Department of Agriculture. Light tasks, such as sewing, crocheting or embroidering, call for an average expenditure of about nine calories an hour more than that of the same person sitting quietly in a chair. Tasks regarded as "harder work" than sewing, such as washing, sweeping or scrubbing, require an increment of at least fifty calories an hour.

The government experiments have shown how the mere change in the height of the table at which work is being done may cause an increase of from 20 to 40 per cent. in the calories required. This illustrates, to quote the report, the importance of choosing equipment to "fit" the worker. If the lesson is applied to the sick room, however, it serves as a patent reminder of what is too often overlooked by both the patient and the attendants, namely, that it requires only a seemingly small degree of discomfort or added effort to waste a relatively large fraction of available "strength" and energy. Conversely, complete rest represents the possibility of real conservation if the food intake and the metabolic capacity are not impaired. Even easy work—indeed, sometimes mere sitting up or the operation of dressing—means a real cost to the body which it may be well to save in times of nutritive stress, when economy of energy is an immense gain to the patient.

In considering the effects of fatigue on health and efficiency, it should be remembered that with every movement of any part of the body there is oxidation of food (glycogen) that is stored up in the muscles; and that waste products are formed which are carried from the muscles by the veins and lymphatics to the heart and thence to the lungs, where some are eliminated in expiration, while in inspiration a supply of oxygen is taken in to complete the combustion of that which remains in the muscles. It is thus seen that the deep breathing which follows exercise is one of Nature's methods of getting rid of the

poisons—for the fatigue toxins are true poisons—that are formed from muscular effort.

Nature has provided sufficient lymphatics and blood vessels in the muscles to remove the toxins that come from normal muscular effort; but when a muscle is in action too long or is used too violently, the waste products cannot be carried off fast enough, and the nerve terminals in the muscles are poisoned with the toxin of fatigue. They therefore become sore, stiff and incapable of work. The reason why a hot bath prevents soreness and stiffness in fatigued muscles, after a long walk or prolonged physical labor, is that it increases the superficial circulation and draws some of the poisoned blood from the muscles to the surface of the body.

In any kind of work or exercise the effort should be to stop before excessive fatigue occurs, or to rest long enough afterward for all the fatigue toxins to be eliminated before the muscles are used again. A certain amount of fatigue is normal and therefore healthful. The physiological effect of the fatigue toxins is to depress mental activity, manifested usually by drowsiness. It promotes sleep and it is Nature's signal for rest. On the other hand, excessive fatigue up to a certain point often induces insomnia. How often do we hear people say, "I was so tired that I could not sleep."

The physiology of mental fatigue is much the same. With every form of mental activity there is oxidation of food products stored in the brain, with resultant waste which must be carried off by the blood. There is only a limited circulation in the brain, because of the fact that the arteries are terminal vessels and the brain tissue is poorly supplied with capillaries to carry off waste products. These fatigue "stuffs," as they are called by some, therefore, accumulate very rapidly in the brain and are slowly eliminated.

It may seem paradoxical, but when there is an excess of fatigue stuffs in the general circulation from muscular over-exertion, or in the brain cells from mental overwork, the first effect is to stimulate the higher centres, and one feels conscious of increased mental and physical power. This accounts for the "second wind" of which Henry James speaks, when men, after first feeling the effects of fatigue, if the effort is continued, may become conscious of renewed and even increased ability to perform mental and physical work. This temporary exhilaration that follows excessive fatigue is a true auto-intoxication because the toxin is generated within the body.

Like the intoxication from alcohol, the fatigue toxins, if they are present in great quantity, produce stupor and, as in alcoholic poisoning, they are followed by a period of depression. The "morning after" a mental or muscular debauch is not unlike that which follows a night of excessive drinking. One feels stupid; there may be headache, loss of appetite and a condition of general malaise which interferes with comfort and efficiency.

If the auto-intoxication from overwork is continued for months or years it not only causes chronic inefficiency, but the toxins of fatigue circulating in the blood cause thickening and hardening of the arteries, chronic Bright's disease, heart disease, much in the same way as do alcohol and the toxins generated by bacterial action.

The auto-intoxication generated from excessive fatigue will not cause a man to "shoot up the town," nor to squander money, nor to indulge in riotous living, because it does not dethrone reason as does alcohol; but, if continued, it will as surely decrease efficiency and cause ill health as will the enemy that "man putteth in his mouth to steal away his brain."

Allen's work on Diabetes Mellitus, with Joslin's elaboration of the same, have done much to start many doctors in rational feeding. Traditional books with foolish diet tables for all known conditions have done great harm by obscuring the subject of dietetics. That our medical schools still turn out graduates who know much about the absolutely useless drugs, but less about food than a girl graduate of a good high school, needs no comment. Every physician should know that man needs, in health or disease, about one gram of protein for every two pounds of his body weight; that he also needs eighteen hundred to three thousand calories to be supplied by carbohydrates and fats according to the work which he has in hand, the season of the year, and his climatic environment. The protein is material for building and repair, the carbohydrates and fat are fuel to keep the body warm and supply motive power for muscles and glands; the body also needs some mineral food, but a rational mixed diet furnishes a supply of the

necessary mineral elements. Whether we class water as food or not, it is well to emphasize here the fact that the most important need of the body in health and in sickness is the supply of a sufficient amount of water to provide for two to three pints of urine and one to two pints of water to be given off by the skin and the lungs in each twenty-four hours. This will insure to the organism water enough to help regulate the body heat, to make possible the chemical reaction of the cell protoplasm and to bring the reagents for these reactions and dispose of the waste products of the same.

So much for the diet in health. What is actually known about the diet requirements in disease is very simple and interesting. Those who are not familiar with them should read Professor Chittenden's "Physiological Economy in Nutrition," and Lusk's "Science of Nutrition." Both books are fascinating reading and give added interest to one's daily work.

In very acute, virulent, febrile diseases, as "flu," "grippe," pneumonia, rheumatic fever, etc., the digestion is upset by the onset of the disease and food is best withheld until the appetite and a clean tongue indicate that the digestive organs are ready to negotiate a suitable supply of nourishment. Then the attempt should be made to supply the needs of a body at rest, choosing simple, readily digested articles such as porridge, gruels, purees, fish, chops, chicken, beef, cheese, milk, cream, butter, oil, etc. The needs for the patient in health should never be lost sight of for the needs of the sick man are practically the same as the needs of the well man in proportion to the amount and kind of work he has to do. The question is not what is the diet for this disease, but what does this individual need in the way of building material and fuel food. When asked the familiar question, "Doctor, what shall the patient have to eat?" you should consider, first, what a human being of the size in question needs for the work which the individual has in hand; second, whether it seems wise to make up this requirement without the coarser articles of diet; this should be the case when a sensitive, irritable condition of the digestive organs is indicated by nausea and vomiting, flatulent distention, colicky pains, or loose undigested bowel movements with mucus in the stools; third, whether the patient in question needs laxative or astringent articles of diet. In the former case the vegetables high in cellulose, the five per cent. and ten per cent. vegetables of Joslin's list, should be used very largely. If the digestive organs are irritable, the vegetables may be given in the form of purees which can usually be tolerated by the most delicate stomach. In case there is a tendency for the food to be hurried through the digestive tract and passed in an undigested form, in loose bowel movements, these five per cent. and ten per cent. vegetables should be omitted and carbohydrates should be given in the form of zwieback, Hubbard's rusk, well toasted white bread, Philadelphia pulled bread, farina, imperial granum, cream of wheat, tapioca, Robinson's barley flour, or other preparations of barley, while protein is supplied by boiled milk, cream cheese, egg albumin, etc. Buttermilk should not be used, but cocoa made with peptonized milk or boiled milk should be used freely. In some cases of diarrhoea, the various fermented milks may be tried and often give good results. Fourth, what special articles are contra-indicated or need to be taken in minimum or carefully measured or limited amounts, such as carbohydrates in diabetes mellitus or other diseases of the pancreas or in chronic polyarthritis, protein and sodium chloride in nephritis (the former when the phthalein return is low and the non-protein nitrogen in the blood is high, and the latter when there is general edema and the salt return is low), and also in epilepsy the sodium chloride ration should be limited to the minimum; purin bodies—meat (which includes fish and poultry), coffee and tea, chocolate, and asparagus, representing the principal ones—being restricted in gout; however, the diagnosis of gout should not be made by the general practitioner without the evidence of tophi, unless the aid of a laboratory or an experienced clinician can be called upon; food high in oxalic acid should be omitted from the dietary when there is evidence of oxaluria, or deposits of oxalate in the urinary system; food, particularly water high in lime, should be avoided when the patient has passed calcareous sand, gravel or calculi; fat should be limited in diseases of the liver and pancreas; no food requiring mastication can be utilized as such articles may cause great irritation, in the absence of approximating molar teeth (the biscuspids are virtually molars);

meats and excessive proteins in all probability are best omitted in gastroduodenal ulcer or simple hyperchlorhydria. Furthermore, if the patient is already overweight, it must be borne in mind that he has no surplus of proteins or building stored in his body and that the daily ration of nitrogenous food must be supplied, while, on the contrary, the surplus fat stored in his body may be relied upon to furnish most of the fuel. It must ever be borne in mind, however, that the intestines act normally and efficiently only when supplied with a sufficient amount of cellulose to keep them fairly distended; this means five per cent. and ten per cent. vegetables in forms which are suitable to the condition of the patient's digestive organs. Carry one of Dr. Joslin's pink cards in your pocket and read it at odd moments until you are perfectly familiar with it. When a sufficiently bulky pabulum is supplied, a normal peristalsis keeps the intestinal contents constantly moving onward. On the other hand, if the patient is under weight, while the same amount of protein is needed as before, carbohydrates and fat should be furnished to the point of tolerance. It must always be assumed that the patient is able to take and digest a sufficient amount of nourishment until the contrary is proven to be the case after repeated attempts. The patient's statements, as to his or her ability to digest certain articles of diet, cannot be depended upon. They must be respectfully and carefully considered and, if need be, tested.

I will close with the following quotation from Robert Burns:

"Some hae meat and canna eat,
And some would eat that want it;
But we hae meat, and we can eat
Sae let the Lord be thankit."

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310 *Taylor Building.*

Discussion.

Dr. Silvester, closing:—In reading the above paper my idea was to lay stress upon the particular use of factors given us by nature as well as those of a technical nature; absolute rest when indicated and modifying one's daily physical and mental activities when desired; earlier to bed, more discretion and regulation in regard to eating and fluid consumption. A little more regard for our daily living will most often correct many conditions that will not respond otherwise.

THE X-RAY AS A DIAGNOSTIC AID TO THE INTERNIST.*

By ALEXANDER G. BROWN, A. B., M. D., Richmond, Va.
Stuart Circle Hospital; (Internal Medicine).

surgery in all of its specialties has found wide x-ray as an aid in diagnosis. For years, now, surgery, it has, in more recent times, become uses for roentgenology. What it has been to surgery, it has, in more recent times, become to internal medicine. Particularly advantageous and helpful has it become in the domain of early etiologic diagnosis. As a matter of course, like all other laboratory aids in diagnosis, the x-ray has to be accepted in its proper relation. It has its limitations and its uncertainities, at it has its great excellence and helpfulness. It should not be depended upon too completely. The internist, for instance, who has failed to complete a thorough physical examination of the chest and to make a record of his findings before using fluoroscopic inspection or studying roentgenogram of the patient's chest, has misused this diagnostic aid. No more serious misfortune can befall an internist than that of acquiring the habit of substituting for a careful physical examination any laboratory report or reports. Advantageons as the laboratory-diagnostic-aids have become, they can not supplant the old time plan of inspection, palpation, percussion and auscultation, allied with clear and logical thinking. But, indeed, no more helpful laboratory aid to internal medicine has been conferred by science than that given it by the expert roentgenologist. While the "post-mortem" and observations at the surgeon's side during an operation necessarily must remain as fundamental aids in quickening diagnostic acumen and correcting diagnostic errors, yet daily contact with the roentgenologist in his laboratory, in these days of group medicine, brings to the internist a wonderful opportunity for confirming or disproving his previous physical findings, as it often gives him new light on, and explanations of, obscure and poorly understood points in his study of patients. The x-ray may throw an entirely new light upon cases: adding or subtracting diagnostic values. Besides, in the fields of etiologic diagnosis, of physiologic pathology of organs or structural changes in the body, which make symptoms or diseases, the x-ray is, indeed, in diagnosis a potential factor. Another point in this matter of x-ray

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in internal medicine is the group-study-system of exploration in problems of disease. The internist is greatly advantaged who avails himself of daily or frequent conferences with the roentgenologist (and also the pathologist) in his laboratory. Such conferences and discussions of roentgenograms of patients under investigation is mutually helpful. Then, also, "return examinations" of old patients for observation of changes or improvement or for the checking up former findings, make this team-work one that results in improved accuracy in clinical medicine. With the view of bringing this subject to your attention, I have selected cases illustrating the routine and daily use of the x-ray in internal medicine, as diagnostic aid.

I. Radiographs of Teeth.

When the origin of many common systemic diseases was rather definitely placed at the door of focal infections, a large number of which occur in the mouth and bones of the head, internal medicine made a great advance. Roentgenologists and pathologists, in collaboration with internists, were most influential in bringing to light the point that a considerable number of more or less chronic ailments of the general body were due, aside from other factors, to chronic infections of the roots of teeth and teeth-sockets. This was a practical and actual step forward. But, like all such advance movements in clinical medicine and surgery, within recent years, reckless and needless extractions of teeth have been done as a result of immature and inaccurate conclusions as to such teeth being the definite cause of existing disease. Notwithstanding this acknowledged unfortunate swing of the pendulum, yet, after all, the real relation of "abscessed teeth" (focal infection) as the cause and origin of arthritis, bronchitis, myocarditis, endocarditis, thyroiditis, nephritis, neuritis, myositis, if not gastric ulcer, cholecystitis, pyelitis, prostatitis, appendicitis and other systemic diseases, can not longer be questioned. This clinical, advance made by the aid of the x-ray has enabled the internist to take a far more assured and acknowledged position in the category of medical specialists; diseases that formerly baffled the internist now yield to modern diagnosis and treatment. Many of those patients suffering with "rheumatism" and "rheumatic gout", who formed so large a proportion of the clientele of the old days, are no longer compelled to appeal to the "quack"; to go to "Hot Springs this or that", to "the cure" here or there. This statement applies as well in other domains as in that of arthritis; for instance, it is also true of cardiopathology. While prophylactic value and the early discovery of apical disease of teeth by the use of the x-ray adds another chapter of achievement to internal medicine, let it be understood, to repeat, that no indiscriminate and wholesale extraction of teeth is advised or tolerated by the careful internists of today. Nothing could be more lamentable than ill-advised action of this sort.

Let me cite two cases showing radiograms of teeth as an aid in etiologic diagnosis.

Case 1.—Mrs. R. B.—W. F., Aet. 30, no children. Date November 19, 1919.

Complaints:—(1) No strength and no ambition; (2) stomach trouble; (3) "rheumatic" pains about the body.

Very little sickness of any sort before "flu" in October 1918, and February 1919. Since then has felt weakness and pain.

Summary of Examination:—A rather well nourished woman; mouth showed all teeth removed except two lower cuspids, with evident disease of these and of gums. Tonsils negative. Heart has long blowing murmur (systolic) at base. Heart increased in size. Blood-pressure 110/60. Lungs showed rough bronchial and vesicular breath sounds. Abdomen showed tenderness on pressure over epigastrium, but abdominal muscles were soft and relaxed. Kidneys showed no abnormalities in urine examination. White blood count, 9,866 and hemoglobin 77%. Stomach function on fractional aspiration of an Ewald test meal revealed a total absence of free HCl and total acidity of 30: the stomach, after five aspirations, emptying in one hour and forty-five minutes.

X-ray of the teeth showed a decided apical abscess (Bear).

Diagnosis:—(1) Apical infection, (2) mitral regurgitation with myocarditis (3) gastric subacidity, (4) secondary anemia.

Result:—This patient made very satisfactory improvement, in three months gaining in strength and adding about twenty pounds to her weight.

Case 2.—Mr. L. W. M.—W., M., Aet. 49.

Complaints:—(1) For years patient has been having various "attacks", sometimes for weeks at a time running a low temperature, associated with chilly sensations, (2) he has suffered more or less with arthritis, (3) had heart distur-

bance, (4) had stomach dysfunction; (5) was despondent, supplanting a naturally optimistic and jovial temperment. His teeth were and have been for years a matter of pride with him: he had retained the services of the most skillful dentist. Repeatedly the question of teeth came up when the patient was under observation for some ailment but always assurance was made that the teeth were being cared for and were receiving every treatment needed.

Examination summary:—In May 1919, this patient again returned complaining of (1) fever and (2) chills, (3) despondency, (4) sciatica. On this occasion I insisted on x-ray of all the teeth in spite of "the hundreds of dollars worth of work." The x-ray showed four radiolucent areas indicative of infection: the superior right second bicuspid and second molar; the inferior right second bicuspid and first molar with some doubt about the superior right third molar and left second molar. The tonsils were also examined and found infected.

Diagnosis:—(1) Oral infection. (2) myocarditis, (3) neuritis.

Result:—The removal of these infected teeth and a tonsillectomy have been followed by patient's general improvement: he has gained 20 lbs. in weight, has not had an attack of chills and fever for months and claims that he is in better health than for ten years.

II. Roentgenograms of the Chest, (a) Heart and Aorta, (b) Lungs and Pleura.

In this field of internal medicine, x-ray has also achieved a most useful position as a diagnostic aid. It is wiith a sense of satisfaction that the internist visits the x-ray laboratory and reviews, with the expert x-ray man, findings in chest examinations in doubtful or uncertain cases. The internist, after a careful physical examination checked up with a fluoroscopic and plate study of the same chest-case, may enter the patient's room to render his opinion or diagnosis with keener sense of accuracy than was possible in the days before the x-ray. The internist, for instance, who has seen on the screen the enlarged heart, in systole and diastole, or has observed the fusiform dilatation of the aorta, or has seen the pleura thickened and loaded with exudate, is stronger and surer thereby of his work. The value and the usefulness of this aid to diagnosis in internal medicine is illustrated by the following cases:—

Case I.—Mr. ——., W., M., Aet. 49, millowner and operator, now retired and living on his farm in the mountains of Piedmont, Virginia. Height 5 ft., 10 inches; weight 166 lbs., December 8, 1919, the date of my first examination. Married; has two well grown and normal children.

Complaints:—(1) For three months the patient had experienced a gradual loss of weight (from 180 to 166 pounds); fever daily; (2) frequent, paroxysmal and violent type of coughing attended by noisy shrill breathing efforts; the coughing and difficult breathing rendered sleep of short duration and recumbency in bed for any considerable length of time impossible; (3) expectoration of purulent bronchial and pulmonary secretion marked the course of coughing attacks; he had lost strength and appetite.

Two years prior to this time, while traveling in California seeking health, he was told that he had a "spot" on his lungs and, because of this, he must give up his business and retire to his farm in order to get the outdoor life and freedom from the dust of grain mill. Prior to this and since, for many years he has had each year severe "bad colds" with bronchitis. He had always previously enjoyed good appetite and good digestion. He has taken for many years a drink of whiskey daily. He expressed the fear during the examination that he had tuberculosis of the lungs; that he was not going to "last long."

Examination summary: — Examination showed a man of average height and weight, under stress of difficult breathing and paroxysmal coughing. Skin was clear and free of rash, scars or spots. He had a furred tongue and pus pockets in right tonsil; teeth generally were good, with left lower molars questionable, suggesting need for x-ray of teeth. On his arms and neck several small furuncles were observed. Thyroid appeared negative; no glands were palpable in neck; there was no jugular pulse and no pulsation in suprasternal notch. The left precordium showed some bulging and apex beat of heart was displaced downward. The heart was enlarged. On auscultation the first and second sounds were abnormal in quality, the second sound being particularly accentuated. A systolic murmur was obtained; the heart was beating regularly, but with slowed systolic rate; the blood pressure was 135/80; pulse pressure 55.

Lung examination disclosed a marked respiratory effort—in rate and force. Percussion gave no areas of dullness, but on palpation there was elicited the sensation of wheezing and moisture with increased sounds on inspiration and expiration. On auscultation, exaggeration of inspiratory and expiratory breath

Fig. 1. Mr.——, aet. 49. Diagnosis:—1. Pneumococcus bronchitis. 2. Luetic bronchial hyperplasia. 3. Luetic myocarditis and aortitis.

sounds and broncho-vesicular breathing over the whole chest were observed. There was a marked expiratory-asthmatic-breath-effort in both lungs. The abdomen, stomach, liver, spleen, gall-bladder, appendix and kidneys were wanting in abnormal signs or symptoms. Nervous reflexes were apparently normal, pupillary, patella, Babinski, station, and gait were normal. Urine negative. Red cells 3,160,000; leucocytes 9,000; hemoglobin 80%; Polys. 78%, S. Lymphs 21%, L. Lymphs 1%. Sputum was negative for T. B.; streptococci and diplococci were present. Wassermann was positive—3 plus. Tests for rag-weed and timothy-hay were slightly positive. X-ray fluoroscope (Dr. F. M. Hodges) showed heart enlarged and lying transversely; aorta dilated; diaphragmatic angle filled in deep inspiration. Lungs showed a mottled, diffuse infiltration throughout, but no tuberculosis. Teeth x-ray showed some doubtful teeth.

Diagnosis:—(1) Pneumococcus bronchitis (non-tubercular), probably secondary to and associated with Fall hay fever; (2) syphilitic bronchial hyperplasia; (3) myocarditis (possibly luetic).

Result:—Patient remained in hospital three weeks: improved promptly on rest; K. I.; and mercury. Salvarsan was not given because of fear of reaction. Patient was examined in March, 1920; he weighed 180 lbs. and was free from symptoms. Specific treatment is to be continued.

Case II. (Illustrating tuberculosis).—Mrs. J. A. G., W., F., Aet. 32.

Complaints:—Patient had had a chill and was running a high grade of fever and typhoid was feared in the absence of the usual gross and physical signs of tuberculosis.

Examination summary:—Physical examination of the chest, however, elicited fine crepitant rales in the middle lobe and a corresponding area of dullness. The patient had had no cough or expectoration. The patient was continued in bed and in a few weeks some cough appeared and expectoration of bronchial secretion. Examination of sputum showed abundant tuberculosis bacilli. X-ray examination of right lung showed heavy root shadows and marked peribronchial thickening, especially to upper lobe. In right lung, from apex to third rib, there was almost complete consolidation of lungs; just below clavicle inner third there was circumscribed area of lessened density due probably to breaking down of the lung tissue at this location and beginning cavity formation. The heart was decid-

Fig. 2. Mrs. J. A. G., aet. 32. Diagnosis:—Acute pulmonary tuberculosis.

edly enlarged. The left border was straight, showing enlargement of left auricle. The diaphragm on the left is a little high. This pathology in the upper left lung was probably rather extensive tuberculosis. An abscess can not be ruled out, however. In this case, both

the physical examination of the lungs and microscopical examination of the sputum prior to the x-ray examination had showed active tuberculosis of the left lung.

III. X-ray Examinations of Gastro-Intestinal Tract.

The internist, in the actual process of clinical diagnosis has found the x-ray an invaluable aid in solving problems, heretofore uncertain and difficult, in the domain of the abdomen. To every internist comes a considerable percentage of patients presenting more or less important or grave symptoms related to the digestive tract. This group of patients heretofore have been studied chiefly by "gastric analysis"; often, only one analysis taken 45 minutes after a test-meal was depended on to settle the whole question of gastric-dysfunctionation or pathology. But, now, the internist, in the study of cases requiring investigation of the function or pathology in the stomach or intestines, has the great help of the roentgenograms of the gastro-intestinal tract and of the gall-bladder region, as well as the fluoroscopic examination jointly with the roentgenologist. A wealth of information has been often disclosed in these x-ray studies, formerly unknown until the patient was operated upon. True it is, too, that internists, through the x-ray, as the result of negative findings, have been relieved to know that what was feared to have been serious pathology turned out to be mere misfunctioning organs. These points are illustrated in the following case reports.

Case I.—J. R. M., of Enfield, N. C., Aet. 46, M., married, cotton buyer.

F. H.:—Father died at 65 of ulcer of stomach, after years of "dyspepsia"; mother living, aged 76 years, in good health; one brother and sister died of typhoid.

P. H.:—In childhood, patient had measles, whooping-cough. In youth and early manhood had sick-headaches and stomach attacks, and malarial fever with chills fifteen years ago; had rheumatism in shoulder for past two years; never had influenza, pneumonia, typhoid fever. Patient had sugar in urine.

Complaints:—(1) Patient feared he had cancer of the stomach. (2) Patient has been having attacks of sick-headache about three times every month with more or less remissions for ten or fifteen years. The attacks recently have been getting worse and intractable. Patient has lost twenty-six pounds in weight (196 to 170).

Habits:—He has never been addicted to alcoholic habit; has used coffee twice daily, tea in summer, coca cola frequently; aspirin for headaches; he has been an incessant smoker of cigarettes; he has been an excessive water drinker. He denies having had syphilis or gonorrhea.

Summary of answer to questionaire on function of organs:—Patient has had a large and voracious appetite; has always eaten his meals very rapidly; has had a pain in the stomach after eating; has had no sour stomach, but has belched very much; has abdominal distention from gas; has constipation, no diarrhea; has had no evidence of tape-worm, hook-worm, or amoeba; has had some itching at anus, but no piles; has felt no cardiac symptoms; occasional dizziness, no palpitation, pain or oppression over the chest; he has passed large amounts of urine; has had pain in the back; has had no shortness of breath, cough, hay-fever or asthma; he has had itching of the skin; some hives; he has large tortuous varicose veins of both legs; nervous but sleeps well; has had poor eyesight; hearing normal.

Examination summary:—General appearance is a well built man, 170 pounds, about 5 feet, 10 inches in height. Patient frequently licks lips as he speaks; his mouth shows few suspicious teeth, a small amount of pyorrhea, the mucous membrane is dry; the salivary ducts appear normal; the tonsils are negative, although he said he had had a sore throat two months ago. The neck is normal, no struma, or lymphatic enlargement. Skin of face sunburned but no evidence of eruptions or scars. The body temperature is 98.6 F. The heart, lungs, pleurae, were negative. The abdomen on palpation and pressure elicited a pain in epigastrium but none over appendix. The stomach and intestines appear somewhat ptosed. The spine, long bones, hands, feet, appear normal. The motor and sensory reflexes appear normal. Some piles and apparent pruritus are observed, but no varicocele or scars upon genitalia. The legs show tortuous, distended blue varicosed veins, much accentuated by prolonged standing position.

Laboratory examinations:—Urine negative,

except for sugar. Wassermann negative. Leucocytes 8,000. Polys. 76%, S. Lymph. 14, L. Lymph. 9, Trans. 1%. X-ray made of gastro-intestinal tract. Meal passed through the oesophagus without any obstruction. Stomach about normal size; position a little far to the right. There is hyperperistalsis but fairly marked pylorospasm, causing rather slow emptying time. The duodenal cap is small,

Fig. 3. Mr. J. R. M., aet. 46. Diagnosis:—1. Diabetes mellitus. 2. Hyperchlorhydria. 3. Pylorospasm. 4. Chronic appendicitis. 5. Oral infection.

but am unable to detect any filling defects. There is slight tenderness over this area and over the gall-bladder area. The stomach was entirely empty in six hours, meal reaching first part of transverse colon. Twenty-four hour examination showed meal reaching from the cecum to the rectum. Only a very small portion of the appendix filled. This was movable but showed rather marked tenderness on pressure.

Summary:—This is evidently a case of chronic appendicitis with pylorospasm and irritation of the stomach. I am unable to absolutely eliminate trouble around the duodenum and gall-bladder, and believe that when he is operated upon, if this is done, an incision should be made so that the gall-bladder and duodenum could also be examined at the time the appendix is removed (Dr. F. M. Hodges). Feces negative. Stomach contents by fractional method showed:

	Total	Free HCl.
(1)	40%	26
(2)	42%	26
(3)	40%	28
(4)	42%	28
(5)	40%	26
(6)	38%	20

Diagnosis:—(1). Diabetes mellitus (mild grade); (2) hyperchlorhydria with pylorospasm; (3) some pyorrhea and oral infection; (4) suspected ulcer of stomach, not proved but x-ray report points to appendix, (5) excessive use of cigarettes; rapid eating; habits.

Case II.—Mr. J. L. O., W., M., Aet. 53, mail-man, March 16, 1920.

Complaints:—Last Fall began to have trouble with "gas on his stomach"; was wakened up at night by "water and acid brash" rising in his mouth; has burning and pain over his stomach. Has fallen off in weight 54 pounds. Had "flu" recently. He was x-rayed by Dr. Hodges as the gastric analysis was of secondary importance. The x-ray plainly showed organic obstruction at the pyloric end of the stomach or in the first third of the pylorus itself. After six hours there was al-

Fig. 4. Mr. J. L. O., aet. 53. Diagnosis:—Chronic indurated gastric ulcer; obstruction of pylorus (non-cancerous).

most total retention of the bismuth meal. This meant almost complete obstruction at that time. In addition to organic change there was an element of spasmodic contraction at this opening. Ulcer or other pathology was present and the exact location other than above indicated was not definitely shown by the plate. Mr. O. was, of course, operated on by

a competent surgeon. Already having lost a great deal of weight, perforation or hemorrhage was threatening.

1135 *West Franklin Street.*

CERTAIN TYPES OF CEREBRAL MANIFESTATIONS IN CARDIO-RENAL DISEASES.*

By WM. H. HIGGINS, M. D., Richmond, Va.

Some twenty years ago, Head laid down several inalterable laws governing the symptomatology of visceral disease. In a study of a series of cases, he demonstrated that there were definite mental changes which may accompany these diseases, and may even antedate other symptoms. He tabulated the records of 62 cardiac patients in whom he found the sensorium or sensory centers involved 74 times, there being obviously two or more abnormalities of function in the same person. These tables opened up a new vista in cardiology and they emphasized the fact that a cardiopath is prone to become a neuropath.

It must be recognized, however, that these associated mental or cerebral changes may be produced in several ways. Head has suggested as possible causes, cerebral anemia or hyperaemia through an altered circulation, structural changes in certain of the ductless glands, the retention of toxic agents in the blood due to diseased viscera, and lastly, to an inherent mental tendency becoming manifest as an active mental disease.

It is not the purpose of this paper to take up these various underlying factors which are capable of producing cerebral disturbances, or to analyze the mental phenomena per se, but to discuss certain types of cerebral manifestations having as their basis an impaired circulatory system.

The exact nature of the cerebral lesion which may be responsible for these symptom-complexes is a subject of divergent opinions. A commonly accepted view attributes the changes to some toxic disturbance arising either from a disordered metabolism or a retention of some products of normal metabolism which fail of elimination through an impaired renal epithelium.

Another explanation may be found in alterations in the intracranial tension. It is well to keep in mind that the circulation through the brain is unique in comparison with that of any other organ of the body. Encased in a rigid cranium, the volume of blood cannot, like that in other vascular areas, expand and contract in proportion to changes in the blood supply. Neither can the calibre of the vessels be altered unless there is a compensatory change in some other structures in the cranial vault.

Leonard Hill has shown that the intracranial pressure varies directly with the venous pressure within the skull and only passively follows changes in the pressures in the arteries and veins of the systemic circulation. He has further demonstrated that by no physiological means can intracranial pressure be maintained higher than cerebral venous pressure. However, when the intracranial pressure through any pathological cause becomes greater than the pressure in the venous sinuses, then the cerebral circulation is mechanically altered. Venous stasis follows which in turn causes a still greater degree of intracranial tension and this latter condition produces by pressure on the capillaries a cerebral anemia. Brain function is disturbed and the well known cerebral manifestations follow.

As pointed out by several physiologists, notably Hill, the cerebro-spinal fluid plays only a minor part in the production of this train of events, and his statement that intracranial pressure is of purely circulatory origin applies alike in a physiological and in a pathological sense. Any cardiac decompensation, therefore, may readily bring about a venous engorgement sufficient to reproduce the condition just described. The cerebral veins are particularly liable to back pressure from the right auricle owing to the absence of valves in this part of the venous system.

Against the toxic theory, Cushing has brought out the point that even in cases of so-called uraemia the alterations in the intracranial pressure may be the underlying factor. He has called attention to a number of subjective symptoms which are directly comparable to those seen in conditions known to be associated with increase of intracranial tension—more particularly headache, nausea, drowsiness, vertigo, Cheyne-Stokes breathing, etc.

In support of this opinion, he adds that it is difficult to explain the absence of uraemic symptoms in cases of complete suppression of

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urine in which a large excess of urea and other excrementitious products occur in the blood. In view of these well recognized changes which can be shown experimentally, the evidence is undoubtedly in favor of a circulatory unbalance as the primary agent in the majority of these disturbances.

My purpose in bringing up this subject for discussion is to point out certain types of cardio-renal diseases where cerebral manifestations not infrequently occur and may occasion some difficulty in their interpretation.

1. Effect of Failing Heart on Cerebral Functions.

Leonard Hill has shown that the merest trickle of blood may keep the brain intact, but may not be sufficient to preserve the sensorium. Such patients may be able to maintain a mental equilibrium at intervals for only a short period of time, their memory for recent events may become impaired and, in the more serious cases, definite hallucinations may appear. I recently saw in consultation a woman whose appendix had been removed and, following the operation, she had developed various forms of hallucinations. She had an acute enterocolitis and her heart was found to be in auricular fibrillation with other evidences of cardiac embarrassment. Her delirium had been looked upon as toxic in origin due to the intestinal infection. Within thirty-six hours after intensive digitalis therapy, her heart quieted down and her mental condition became entirely clear. The prevalent impression that the appearance of any mental disturbance during the course of a febrile disease and particularly in post-operative cases is toxic is undoubtedly true in many instances. I am inclined to believe, however, that a number of these deleria may be found with an underlying cardiac pathology.

2 Effect of Adams-Stokes Syndrome on Cerebral Functions.

Whenever there is a definite interference with the normal contraction wave as it passes to the ventricle by way of the bundle of His, the blood supply to the brain will be arrested and, if prolonged, epileptiform contractions of the muscles of the body may result. This type is relatively uncommon and its recognition without the aid of the more recent instruments of precision is often attended with some difficulty. McKenzie has pointed out that identical cerebral phenomena may arise from other conditions where the ventricular contraction is too slow.

3. Cerebral Anemia Due to Vasomotor Instability.

This type is commonly found especially among adolescents who show other evidences of functional disturbances. In the mild attacks there may be a transient dizziness or giddiness, but when the cerebral anemia becomes at all marked, loss of consciousness may follow. Pulse tracings taken during these syncopal attacks by McKenzie showed a slowing of the heart rate with marked weakness of the pulse. Closely akin to this type, but usually of more pronounced severity, are the so-called cerebral arterial spasms which frequently occur in elderly people who bear evidences of atheromatous changes. These attacks as a rule come on suddenly and may produce symptoms ranging from a transient numbness to complete hemiplegia. In many instances there may be a momentary aphasia or a sudden loss of consciousness resembling a petit mal. Fortunately, the resulting ischaemia is of short duration, and there is a prompt restoration of function. The alarming feature of this type is the danger of a hemorrhage during the attack.

4. Cerebral Manifestations of Chronic Hypertension With Contracted Kidneys.

A consideration of this type of cerebral disturbance can be more intelligently discussed by presenting a brief resume of the history and physical findings in a patient who illustrates this unusual condition. I do not hesitate to state that a diagnosis of brain tumor was made and, upon my recommendation, a cerebral decompression was performed. Although the subsequent history disproved my diagnosis, the operative procedure seemed justifiable and apparently beneficial.

The patient, aged 25, was seen in consultation in April, 1919. Her chief complaint was intense headache and frequent attacks of nausea.

She had had all the usual diseases of childhood and four years ago she was in bed for six weeks with fever of unknown origin. She has been subject to attacks of headache and

gastric disturbances since childhood, but has never had any other illness. Although her headaches have been recurring for many years, the attacks have been more severe and more frequent since the illness of four years ago. During the past year they have been present almost daily and on a few occasions she has had periods of unconsciousness with epileptiform convulsions. Her vision has become impaired, especially in the left eye. During the past year, she has been under the care of competent physicians but, in spite of rest and other therapeutic measures, she has grown progressively worse.

Physical examination revealed a poorly nourished girl. Eyes are slightly prominent, especially the left. Ocular movements are normal and pupils are equal and react. The eye grounds show a distinct blurring of both discs, especially in the left fundus. The veins are larger than normal but there are no hemorrhages or exudates. * * * * Heart—left border extends to the outer edge of the nipple line. The cardiac sounds are clear but a faint systolic murmur is heard at the base. Blood pressure—208 (systolic), 118 (diastolic). Pulse, 20 to ¼, regular in force and rhythm, good volume, high tension. Vessel walls not thickened, lungs are clear, abdomen is negative. Extremities—no oedema. Reflexes are increased, especially on the right side. There is no Babinski.

Urine showed a persistent low specific gravity, trace of albumin, no sugar, acetone or diacetic acid. Few hyaline and granular casts were present on each examination. The phthalein output for the first hour was 50, and for the second hour was 25. The salt test showed a normal excretion of NaCl. Unfortunately, no blood urea studies were made. Her blood was normal, including a negative Wassermann. The spinal fluid was under pressure, but normal chemically and microscopically.

The patient was kept under observation for one month, during which time her symptoms grew gradually worse with indications of a progressive right sided paresis. There was distinct weakness of the right arm, ankle clonus appeared on this same side, as well as partial loss of motion of the right leg. The blurring of the left disc increased. Intense headache and active nausea became constant. Although there was no doubt as to the presence of a chronic interstitial nephritis with hypertension, the persistent symptoms and signs of a localized intracranial pressure suggested the possibility of a neoplasm. A tentative diagnosis of a cerebral tumor in the left hemisphere was made and a decompression was advised as a palliative measure. The surgeon reported a bulging of the brain upon opening the dura. * * * *

The patient left the hospital in one month following the operation and was discharged very much improved. Her statement one year later is to the effect that she has been practically well during the intervening period. There is an occasional headache of moderate degree, but she has not been confined to her bed, and she is actively engaged in household duties.

An examination of her at this time showed a depressed temporal flap, no swelling of the optic discs and no evidences of a one-sided paresis. Her blood pressure was 210 systolic. She has gained in weight and looks well.

It is needless to add that there was an error in the diagnosis, yet the satisfactory clinical result prompted me to make a survey of the literature for a similar experience. In 1908, Cushing reported a case with practically identically the same symptoms and physical findings, although his patient showed evidences of a more severe renal involvement. Quoting from his discussion of the subject we find, "In the light of some experiences in other renal cases in which notable temporary improvement in the general symptoms as well as in the condition of the eyes had occurred after lumbar puncture, we were led to suggest, owing not only to the advancing change in the eye grounds, but also to her condition of semicoma, the propriety of a decompressive operation, and the patient was transferred to the surgical side for that purpose."

The improvement in his patient's condition was miraculous, and she was able to leave the hospital in two weeks. Unfortunately, her relief was only temporary, as she was brought back within two weeks in a comatose state from which she never regained consciousness. An autopsy revealed the underlying pathology in the cardio-renal system.

Cushing states that this is the first recorded instance of a deliberate surgical intervention in a case of uraemia on the view of its being a pressure phenomenon. Bramwell, however, in

1906 related the history of a patient with similar symptoms who was operated on for a supposed brain abscess, and was promptly relieved although uraemia proved to be the real cause.

The similarity of the symptoms resulting from certain types of vascular diseases and cerebral lesions has undoubtedly been impressed upon most of us, as the differentiation of uraemia with cerebral manifestations and intracranial growths often present many difficulties. An explanation of this confusion, however, may be found in the suggestion of Traube, who as early as 1861 held to the view that the cerebral symptoms of uraemia were due to a cerebral oedema rather than to any toxic disturbance. This plausible theory naturally leads us back to increased intracranial tension as the underlying factor and condition common to both types of lesions.

There are several points worthy of consideration in connection with this unusual experience:—

In the first place, one is impressed with the fact that changes in the eye grounds are dependent upon changes in the intracranial pressure from any cause and that no differentiation of cerebral lesions can be made from this observation alone. Cushing has shown experimentally that the degree of choked disc varies directly with the amount of fluid injected into the cranial vault. Wherever the oedema is localized there will be corresponding cerebral manifestations. Any swelling of the brain, as a matter of fact, be it localized or general, may produce symptoms suggestive of either a nephritis or neoplasm.

Secondly, the absence of oedema elsewhere in the body does not preclude the possibility of an oedema in the brain.

Thirdly, the advisability of a decompressive operation in selected instances of cardio-renal disease with hypertension, where cerebral manifestations are pronounced and have not been benefited by medical measures has a sound therapeutic basis and may afford temporary symptomatic relief. Its rationale in all probability is due to the conversion of a rigid vault into an elastic organ, thereby lessening the likelihood of a venous stasis.

Conclusions.

Cerebral manifestations frequently are associated with alterations in the circulatory system and are dependent upon either a cerebral anemia or an increased intracranial pressure.

Cardiopaths are prone to develop hallucinations, and a post-operative psychosis may often be explained by a failing circulation.

The cerebral manifestations of a chronic nephritis with hypertension may easily simulate those of a brain tumor and are due to a general or localized cerebral oedema. The advisability of a decompression in those cases as a palliative measure, where medical treatment has failed, is well illustrated in the case reported.

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Professional Building.

Discussion.

Dr. B. R. Tucker, Richmond:—I think Dr. Higgins' paper brings up a very interesting and important phase of the consideration of cerebral conditions. There is nothing absolutely fixed in opinions of these kinds of conditions. Some may think these cases are due to wet brain; some think there is an increase of cerebro-spinal fluid; at times cardio-vascular spasm occurs which gives symptoms. In some of the doctor's opinions I can not exactly agree. For instance, we hesitate very seriously recommending an operation for high blood pressure. The case he cited I am familiar with as she was under my care and Dr. Vander-Hoof's for a long period of time. She had no evidence of brain tumor, was purely a cardio-vascular case, and was so treated. I was surprised one day to have the patient come into the office and see her so improved and hear her say she was cured because of removal of a brain tumor. I told her she did not have a brain tumor; however, she had improved. It might be that the decompression improved her, but we can not recommend the procedure. The diagnosis is sometimes more or less confusing, especially to people not trained in neurological work.

I recall the case of a man who presented all the symptoms of a cardio-vascular cerebral condition and undoubtedly had them, but in this man's case we made a diagnosis that he had a cerebral lesion; it was hard to tell what the lesion was but we thought he had a cerebral abscess. There was no scar seen till at the autopsy when we found a scar under which was a piece of glass bottle between the layers of bone and under this was an area of meningitis. There was no history of injury and we expect in cases of this kind the diagnosis to be hard. In the case reported by the doctor we can not see the reason for the diagnosis of brain tumor.

Dr. Tom A. Williams, Washington, D. C.:—It is not surprising that this case is classed as a cardio-vascular one, so much are our ways of thinking

influenced by former habits. I should be inclined to classify quite differently, as I shall presently show. In the first place I would like to agree with Dr. Tucker as to inadvisability of sending cases of this kind to operation when other measures are capable of relieving them. The important factor in cure is not at all the vascular stage, but the toxic stage. Cardio-vascular condition is secondly. In this particular case, no report is made of the chemical condition of the blood, the non-protein nitrogens, the chlorides, etc., of metabolic factors indicative of toxic condition. By injection of glucose properly, such cases are relievable in most instances. Therefore, we should classify this case as we should many cases of vascular high tension as metabolic, not cardio-vascular, and treat them as metabolic cases, in which cases we should prevent perversion of metabolism, or when they occur, remove them. Although by the physical signs we cannot always differentiate between tumor and symptoms caused by local serositis of the cerebrum, as Dr. Hooe shows where he was deceived in cases of brain tumor.

However, I recall a case of Dr. Hooe's where I made the differentiation between toxic oedema and cerebral neoplasm by means of chemical examination of retinal exudate, and sign of brain lesion led others to diagnose brain tumor. However, the importance of early neurological examination cannot be over-emphasized as only by that can we save life or sight. Tumor must be diagnosed long before choking of the disc occurs, and it can be done in most cases. Hysteria must not be affirmed until a well trained neurologist has surveyed the patient. Cardio-vascular brain states should be anticipated by treatment in the prescleroticstage as I have long since shown.

Dr. Emory Hill, Richmond:—I am not sure that I understood Dr. Higgins correctly in the matter of a choked disc. The eyeground changes in renal disease must be distinguished sharply from the choked disc of increased intracranial pressure. The former condition is an inflammatory one involving the nervehead and adjacent retina and often the macula, with hemorrhages. Choked disc is an edema originating from increased pressure within the skull cavity. The two appearances are quite distinct and their meaning is quite different. For example, a man was recently sent to a hospital for operation because of a brain tumor, the diagnosis of which depended upon the eye condition, regarded as a choked disc. Symptoms suggestive of brain abscess could be elicited in this case; but the eyegrounds did not reveal a choked disc. There was a neuroretinitis of the sort frequently found in advanced nephritis. This man died in a few days in coma. Autopsy proved the existence of nephritis and the absence of brain tumor or abscess. The proper interpretation of the eyeground changes prevented a useless operation. The description given in Dr. Higgins' paper does not indicate that choked disc existed, but rather a neuroretinitis pointing to nephritis and not to intracranial growth.

Dr. C. C. Coleman, Richmond:—In reference to cerebral disturbance associated with cardio-renal disease it would seem possible to assume that these patients have recurring attacks of cerebral edema. It is hard to agree with Dr. Higgins that the disturbance of function is due to the vascular changes dissociated from the swelling of the brain tissue. The experimental work done by Weed on cerebral edema has thrown considerable light on this obscure condition. It does not appear from a study of the subject of cerebral edema that high vascular tension is necessary to the production of cerebral edema, although the two conditions may, of course, be associated. Some cases of headache due to cardio-renal disease have been benefited by cerebral decompression. In some of these cases it is highly probable that there is a rise of intracranial tension which the decompression relieved. There would probably not be a uniformity of good results in performing decompressions in cases of cardio-renal disease, and I believe that occasion rarely arises to employ such treatment. It would seem in the case discussed by Dr. Higgins that the patient had a toxemia of bodywide distribution, and the cerebral decompression probably relieved one manifestation of this toxemia. The good results as he has reported, however, are unusual in such cases, although I admit the inclination might be to attribute the patient's relief of headache to the effects of the decompression.

Dr. Higgins, Richmond (closing discussion):—I brought up this case for discussion for several reasons; chiefly, because there was a mistake in the diagnosis. Although it was definitely known that she had a well marked chronic interstitial nephritis, yet her symptoms were out of proportion to the apparent renal impairment as indicated by the laboratory data. Unfortunately, blood chemistry studies were not available at that time. Her general condition was growing progressively worse; she had been in bed for nine months previous to her admission to the hospital; focal signs were persistently present, and she had finally passed into a state of semi-coma. It then became a question of inevitable exodus or the possibility of a cerebral tumor with a decompressive operation as an emergency measure. As the former alternative held out no hope, and the latter offered a possible palliative relief, an operation was advised. I do not hesitate to state that subsequent events have demonstrated an error in the diagnosis, yet at the same time, I am of the opinion that the relief of the intracranial tension was the turning point in her life. However, I do not wish to go on record as advocating decompressions for chronic nephritis as a routine, but I do agree with the position taken by Cushing in regard to the type illustrated by this case.

I regret that the discussion has been confined to this particular phase of the subject, as the other types of cerebral manifestations are more frequent and of greater practical importance.

THE USE OF THE ELECTROCARDIOGRAPH IN THE DIAGNOSIS AND TREATMENT OF HEART DISEASE.*

By J. MORRISON HUTCHESON, M. D., Richmond, Va.

The advance of knowledge in recent years of the heart and its affections has to a large extent been made possible through the application of exact graphic methods of study. By means of these, new facts have been brought

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to light which materially modify traditional teachings and many cardiac phenomena, hitherto poorly understood, have been accurately classified and their bearing on prognosis and treatment more correctly evaluated.

It is the purpose of this paper to call attention briefly to a method of examination which has played an important part in the development of modern conceptions of cardiac physiology and which is perhaps the most exact means now available for interpreting many phases of cardiac pathology. This method consists in the application of the string galvanometer or electrocardiograph.

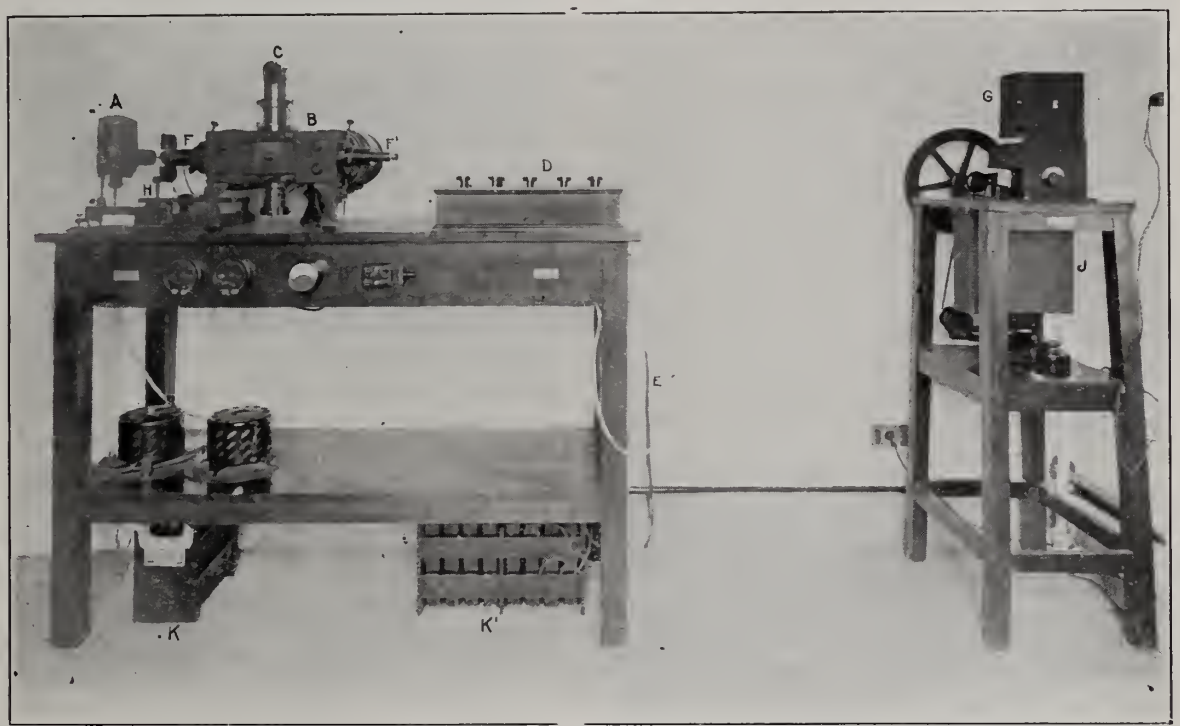

Fig. 1. Electrocardiograph. A. Light. B. Electromagnet. C. String house. D. Control box. E. Electrodes for attaching patient. FF. Optical lenses. G. Motion camera. H. Time marker and tuning fork. J. Receptacle for exposed film. KK. Batteries.

In 1903 Einthoven invented the string galvanometer. For ten years or more the use of the instrument was confined chiefly to research laboratories but gradually the method was introduced into clinical work and thanks to the brilliant efforts of Thomas Lewis in particular its value has been generally recognized and the accumulated experience of recent years has placed clinical electrocardiography on a sound basis.

Concerning the present status of electrocardiography, Paul D. White writes as follows:—

"The subject does seem at first glance difficult and complicated, but since the electrocardiograph has come to stay, it behooves every doctor sooner or later to learn something about it, if merely to know when or in what cases it would be wise to have such a record taken, the interpretation being left perhaps to the special worker. Nowadays, in the complete study of an obscure case of heart trouble, one does not feel satisfied unless one has used all the methods of diagnosis available. Once upon a time a sketchy history and the palpation of the pulse with or without auscultation of the heart with the naked ear sufficed. Gradually, as various instruments have been invented and their value proved, their use has supplemented the primitive examination of bygone days until one by one the stethoscope, the blood pressure gange, the X-ray, the Wassermann reaction have been accepted as instruments or methods yielding additional information about the heart often valuable and supplementing the more careful history. Now it is the turn of the string galvanometer or electrocardiograph. This instrument also adds its quota of information to that obtained by

other means, and not infrequently that information is of great value. The plea that the apparatus is too costly and technical holds true in the same manner as in the case of the X-ray. Every doctor cannot have one, but in every large medical clinic there should be one for consultation."

The instrument most commonly used today consists of a powerful electromagnet between the closely approximated poles of which is stretched a delicate fibre of silvered quartz. When the electrodes attached to the extremities of a living animal are connected with the fibre, the minute electric currents which precede and attend the heart beat cause corresponding movements in the fibre. By means of an optical system and a powerful light the movements of the fibre are projected and recorded on a moving photographic film. The record thus obtained is the electrocardiogram.

The heart in contracting gives rise to waves of electric potential which spread from their source over the entire body and these are conducted to the galvanometer by means of the electrodes connecting it to the patient. There are thus three arbitrary directions of current coursing through the heart which correspond to the three extremities. These are the so-called leads. The current from the right to left arm, running chiefly across the base of the heart, is the first lead; that from the right arm to the left leg, approximately parallel to the long axis of the heart, is the second; that from the left arm to the left leg is the third. Other leads or derivations may be used in obtaining special information, but these three have been adopted in clinical examinations and serve to indicate events connected with the movements of the separate heart chambers.

One very important result of the modern investigation of cardiac physiology and pathology has been to direct attention to the functional capacity of the heart chambers rather than to anatomic defects in the valves. Interest no longer centers around the presence or nature of a murmur nor is the question as to whether or not a valve is affected the paramount issue. Of much greater importance, in the investigation of cardiac efficiency, is the determination of the quality of the myocardium and the character of the cardiac rhythm.

Whether the cardiac impulse to contract is originally neurogenic or myogenic is a question still under discussion and one that seems difficult of solution. However, so far as the heart is concerned, the impulse begins in the sino-auricular node at the junction of the superior vena cava and the right auricular appendage. From this point the contraction spreads through the walls of the auricle and is transmitted to the auriculo-ventricular bundle or bundle of His by which it reaches the ventricle, there to diverge along two main branches which arborize and ramify through the subendocardial tissue. The cardiac impulse has then a definite pathway from its origin or pace maker to its destination in the walls of the ventricle. In the normal adult heart, the pace maker emits impulses at rates which average 72 per minute and, the separate beats being evenly spaced, the systoles follow each other in orderly sequence or rhythm. The pace maker is to a certain extent under the influence of the vagus which normally exerts an inhibitory or slowing effect.

The electrocardiograph furnishes exact and definite information as to the mechanism of the cardiac contraction and is a reliable means of differentiating between disorders of the heart itself and subjective disturbances due to extrinsic nervous influences. Whether or not the heart is actually diseased is often a puzzling problem especially in the cases of so-called cardiac neurasthenics and the determination of a normal mechanism may obviously be of the greatest importance.

It is in the diseases of the heart attended by disorders of rhythm that electrocardiographic studies yield the most exact and satisfactory information, as by this means the impulse may be accurately traced throughout its course and any deviation from the normal may be readily detected. With an understanding of the cardiac mechanism and a knowledge of the principles evolved from graphic studies, the nature of irregularities of the heart or pulse may often be determined by ordinary clinical methods, yet there exist certain arrhythmias that can rarely if ever be recognized without the help of graphic records and defects in the conduction system that occur without irregularities in the pulse or heart capable of detection by the finger or stethoscope.

By means of electrocardiography the sinus arrhythmias of childhood, adolescence and the neurotic, which are often the occasion of need-

less alarm and useless or harmful treatment may be easily recognized and their true significance appreciated. Heart block, which is now known to be much more common than was formerly supposed, can be identified in any one of its various forms; the nature of the block can often be ascertained and valuable indications for treatment disclosed. Premature contractions, the most common cause of a variety of pulse irregularities, are distinctly shown.

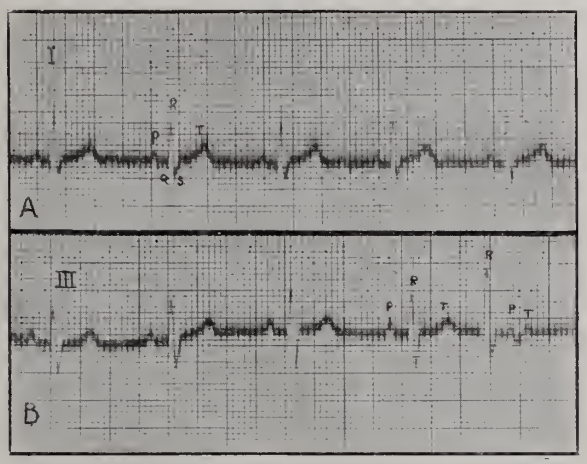

Fig. 2. A. Electrocardiogram of normal heart. B. Single premature contraction originating in ventricle. R occurs ahead of P.

The seat of their production outside the pacemaker can be determined only by the electrocardiograph, and by this means they may be differentiated from heart block for which they are often mistaken. Auricular fibrillation or flutter, conditions that are at times difficult or impossible of detection by other means and whose therapeutic indications are so well established, are clearly revealed.

While the electrocardiograph renders a final decision in all cases of disturbed cardiac rhythm, it is also of value in determining the condition and quality of the myocardium. Not only are the effects of degenerative changes shown in abnormal curve deviations, but hypertrophy of separate chambers and disturbed muscle's balance may be readily detected. While no direct information regarding the anatomic condition of a valve can be obtained, the more important effect of the valve lesion on the heart chambers is revealed, as for instance auricular hypertrophy in mitral stenosis or left ventricular hypertrophy in aortic insufficiency.

No one can fail to agree that the most effective treatment is likely to follow a thorough understanding of the factors entering into the production of disease; that exactness in diagnosis makes for precision in therapy. It can also scarcely be denied that much harm can be done and has been done through the indiscriminate use of powerful cardiac drugs. The electrocardiograph discloses certain specific and well recognized indications and contraindications for digitalis and its allies and affords prompt evidence of their effects. In addition it furnishes an accurate and permanent record of cardiac events which, when compared with future records, is of inestimable value in computing progress in a given case or in estimating the results of therapy.

The electrocardiograph has solved the entire question of disorders of the heart's rhythm and has profoundly influenced modern conceptions of cardiac physiology and pathology. The instrument is in daily use in practically all the leading clinics and most of the contributions to current literature concerning the heart bear reference to its findings. It is, therefore, imperative that a general knowledge of the method be acquired by every clinician

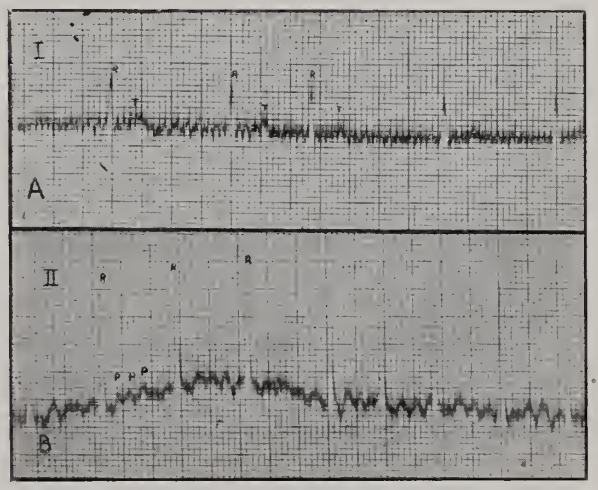

Fig. 3. A. Auricular fibrillation. Instead of the usual P wave ahead of R, there occur a rapid succession of fine oscillations. The ventricle receiving no rhythmic impulse contracts irregularly. B. Coarse fibrillation of auricle at times resembling flutter. The auricle contracts at rates as high as 400 per minute, the ventricle at about 150 per minute.

who strives to keep abreast the times. By no means does electrocardiography replace other tried methods of clinical examination, yet it does furnish information not otherwise available and for this reason alone its aid is essen-

tial to the proper analysis of many cardiac cases.

The normal electrocardiogram shows three chief deflections or waves, with each cardiac contraction named arbitrarily P—Q—R—S

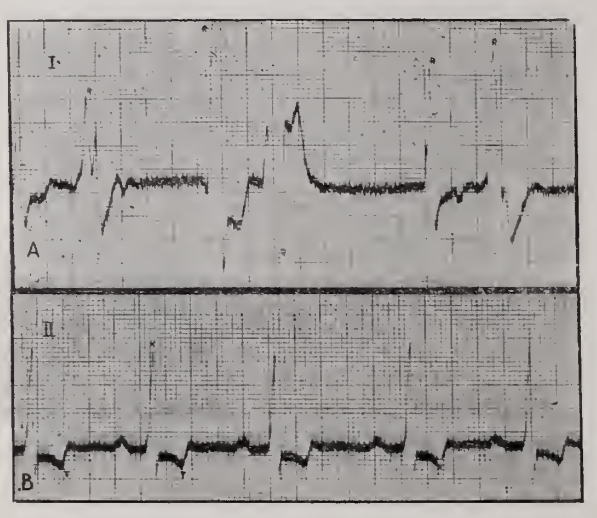

Fig 4. A. Advanced cardiosclerosis with failing compensation. Split R waves showing a synchronous contraction of ventricles. Premature contractions of both ventricles. Partial block. B. Same patient five days later after thorough digitalization. Tall R wave indicating ventricular hypertrophy. Inverted T waves showing digitalis effect.

and T. It is known that P represents the impulse in the auricle, Q—R—S its passage into the ventricle and T the completion of ventricular contraction. The horizontal lines in the record represent tenths of a millivolt in terms of electromotive force. The vertical lines are made by the time marker, the light lines occurring every twenty-fifth, the heavy lines every fifth of a second. It is possible then to measure accurately the various deflections encountered.

The accompanying records illustrate the method and a few of the common electrocardiographic findings.

Professional Building.

PULMONARY ABSCESS FOLLOWING TONSILLECTOMY UNDER LOCAL ANAESTHESIA.*

By W. B. PORTER, M. D., Richmond, Va.

Pulmonary abscess following operations on the faucial tonsils under local anaesthesia appears to be a comparatively rare condition. After reviewing literature rather thoroughly I have been able to find only two cases in English literature, these being done by Simpkins and Noah this year and reported in the Pennsylvania State Medical Journal. The cases cited by them were in patients with well established pulmonary tuberculosis and, in their report, one finds no reason for doubting the accuracy of their observations.

A review of the subject of pulmonary abscess following tonsillectomy under General anaesthesia reveals the interesting fact that the condition seems to have made its appearance with increasing frequency with the advent of the radical operation on tonsils. Bassinn, in 1913, could find reported only nineteen cases of pulmonary complications following tonsillectomy and adenoidectomy. The diagnosis was almost uniformly pneumonia, but in the light of our present knowledge undoubtedly there was a percentage of cases of pulmonary abscess or gangrene. In 1915 Loyd reviewed 185 cases of pulmonary abscess, three of which followed tonsillectomy. In 1916 Manges, Wessler, Richardson Clayton all reported cases and discussed measures for prevention; making suggestions as to the probable pathogenesis of this pulmonary complication. During 1918 Tewksbury speaks of seeing in one year in Washington alone, fifteen cases following operations on the nose and throat. Bevan, discussing pulmonary abscess in the Chicago clinics, states that he has been surprised to find how remote specialists regard this complication, and that many have never had such a case to occur in their practice. This he believes is due to the fact that the internist or surgeon usually sees the case; the patient believing that his throat condition is in no way connected with his illness.

Tonsillectomy is becoming more common each year. I believe this is as it should be if we are to progress along the lines of contructive therapy; yet it behooves us to take an inventory of all the factors relative to a given procedure, so that a very necessary measure be not stigmatized by a most palpable flaw.

Pulmonary abscess following tonsillectomy is comparatively rare, yet the consideration of those elements which add hazard to our daily routine and any analysis of the dangers through which our patients are led in even very ordinary procedure is always entirely apropos. The necessity for such consideration is not lessened by the comparative rarity of any type of complication or sequela: the very

* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

nature of our calling demands a constant attention to all details which tend, however rarely or remotely, to prevent catastrophies in any branch of our field. The report in this communication refers to pulmonary abscess following tonsillectomy under Local anaesthesia, two instances having recently come under my observation. These cases have indelibly impressed themselves on me, and are responsible for my present effort to provoke discussion.

Case Report.

C. C., white, male, age 24, occupation, R. R. clerk, when first seen, was troubled with a cough, and blood-tinged sputum. He stated that he had not felt well for weeks; in fact he had not been well since his throat was operated on about five week before. His appetite was poor; general malaise was constant; some cough, especially in the morning, had existed ever since he left the hospital. Occasionally he would expectorate a slight amount of sputum. He had noticed shortness of breath on going up inclines, and for three weeeks he had felt as if something were pressing the breath out of his right lung. On several occasions he had experienced rather severe pain in the right chest, this usually lasting for only a few hours. His weight had reduced from 131 to 112½ since his operation.

The blood-streaked sputum had produced considerable alarm and anxiety, the patient feeling certain that tuberculosis was the sole cause of his existing state.

Physical examination of right chest showed a very definite impairment of resonance from the fourth rib anteriorly up to apex and posteriorly from spine of scapula for 4 centimeters upwards. The breath sounds were feeble and broncho-vesicular in quality, both anteriorly and posteriorly over the same area. A few scattered moderately fine rales were brought out with cough. Otherwise physical examination was unimportant; temperature, 102; pulse, 96; respiration, 26; leucocyte count, 16,500; polys, 67%.

The patient was moved to the hospital for X-ray study. The X-ray showed a definite area of consolidation, 3½ by 5 centimeters, located in the center of the upper right lobe. The left lobe gave well marked evidence of an old tuberculous process around hilus, extending almost out to the surface of the lungs. This form of pathology was obscured on the right side by the area of solidification.

Two days after entering the hospital, the patient had a severe coughing spell and expectorated 90 c.c. of very foul greenish yellow pus. Examination of this pus showed streptococci, but no "T. B." organism. An X-ray made on the following day showed a poorly outlined cavity where previously had existed the consolidated area; the physical findings showed a diminution in the degree of impaired resonance but no evidence of a cavity. For a few days the expectoration continued free; the patient being nable to enjoy any food because of the foul odor of the sputum. After a week the expectoration lessened and the temperature approximated normal.

The patient left the hospital in five weeks, apparently perfectly well. The physical findings were at that time simply those of hilus infiltration of an old tuberculous infection.

The case here reported presents certain aspects of peculiar interest. The time which elapsed before the symptoms became sufficiently characteristic for the diagnosis to be made or for the patient to discontinue his occupation, was almost five weeks. However, a careful inquiry into the patient's history revealed the fact that he began with pulmonary symptoms approximately eight days after the tonsillectomy. He never regained his normal vitality; progressive reduction in weight gave him considerable anxiety; and chest pain, dyspnea, and an irritating cough all convinced the patient that pulmonary tuberculosis was the direct cause of his ill health. His fear of having this verified is probably the explanation for his not having consulted a physician more promptly. Of very great practical importance is the fact that this patient and the one whose protocol is omitted both presented physical and x-ray findings of definite lesions indicative of co-existing tuberculous pathology. The predisposing causes for the development of pulmonary abscess is a matter open to discussion. This is especially true in those cases which follow tonsillectomy under Local anaesthesia. The question of the probable increased liability to such complications in patients who present evidences of tuberculous lesions, either active or healed, seems worthy of definite consideration. At any rate, whehe such co-existing pulmonary pathology is even suggested, a careful physical examination and rigid post-operative care should be instituted.

The diagnosis of pulmonary abscess is always difficult, especially when it is in the "closed" stage. None of the physical findings described in text books are applicable to the

average case, which presents few characteristic phenomena. Except in very rare cases we are almost solely dependent upon x-ray studies for a positive diagnosis. Interlobar empyema and bronchiectasis prove most confusing at times even when an expert roentgenologist interprets the plates. In the case just reported the diagnosis was not definite until the patient expectorated the foul pus in large amounts, yet the x-ray finding, the leucocytosis and history of tonsillectomy strongly suggested such a condition.

From both an academic and practical standpoint, the pathogenesis of pulmonary abscess following operation on tonsils is of peculiar interest. There can be no doubt that aspiration of infected material accounts for the major percentage of cases; yet where the condition follows operation under Local anaesthesia, other routes of infection must be considered. In this connection it is profitable to view the venous return from the field of operation. There exists a complicated network of veins, the plexus tonsillaris, and the plexus pharyngeus which cover the outer walls of the pharynx and tonsillar cavities, receiving blood from the tonsils, tonsillar pillars and pharyngeal walls. These vessels are exposed and always injured in even the gentlest operative work. This, too, is a field impossible to protect from germ laden saliva and pus. It is, therefore, not difficult to believe that infected emboli could be dislodged from veins thrombotic from trauma and infection located in an area active in every attempt at speech and swallowing. I feel there can be no doubt that infected emboli travel direct to the lungs and cause certain cases of pulmonary abscess. "Aspiration" could not account for a brain abscess secondary to operation on the faucial tonsils, yet undoubted cases have been reported by careful observers.

It is not my purpose to make the impression that tonsillectomy is an operation in which danger outweighs established merit; for it is a procedure capable of great good, in that it removes one of the mst potent sources of focal infection. The faucial tonsils occupy today a much more important position clinically than ever before; yet too often the possible dangers of tonsillectomy are overlooked. It behooves us to appreciate the dangers and to guard against premature condemnation, for the procedure, when properly executed, assumes the nature of a major operation with possible complications peculiar to itself.

Conclusions.

1. Two cases of definitely diagnosed pulmonary abscess are here presented; both occurring in connection with tonsillectomy done under local anaesthesia.

2. Pulmonary complication in these cases could not reasonably be ascribed to aspiration.

3. A logical route of infection would be through the venous return from the field of operation, emboli becoming dislodged in veins thrombotic from trauma and infection.

4. Both cases occurred in patients who presented definite evidence of existing pulmonary tuberculosis. This may be a predisposing factor toward the development of such complications following tonsillectomy.

Stuart Circle Hospital.

Discussion.

Dr. Clifton M. Miller, Richmond:—This question of pulmonary abscess after tonsil operation is one that should ever be present in the minds of the physicians today. Dr. Porter, in talking the matter over with me, expressed great concern, because he said he had never met a throat specialist who had had a case. They say they do not have them; I do not think they do see them because, after operation, pulmonary symptoms are referred to the internist or family physician. The idea of their presence there as a result of aspiration is a difficult one to solve. I am not sure whether the aspiration is the cause. If aspiration is the cause, why could not such occur in both local and general anesthesia, as the blood is the same temperature as the pharynx and of such reaction that it produces little irritation and thus could readily glide down posterior laryngeal wall into the bronchi, pass into the alveoli whence it might not be coughed up and abscess be the result? Abscess of the lung seems to me to be more liable to be produced by the carrying of infected thrombus through the circulation where it finds lodgment in the lungs and this could occur as readily after local as after general anesthesia, as trauma in either case is the same. The condition of abscess of the lung is one that we must think of and, however small the percentage of cases may be, it is a preventable condition and hence the percentage of deaths is too high; thus we should endeavor by every means in our power to find out the cause and prevent even such cases as do occur.

Dr. J. M. Williams, Petersburg:—I am particularly interested in this subject from my experience with a lung abscess in the last sixty days. A man came into my office absolutely healthy, except for tonsils. Advised removal of tonsils. Young man weighed 160 or 170 pounds, was absolutely robust. His tonsils were removed under general anesthesia. On the third day he had a chill, and in a week was spitting up pus of very foul odor; the pus increased until he was expectorating an enormous amount; temperature ranging from 103 or 104 in 24 hours. Put to bed and temperature continued just the same. After six weeks of this treatment

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I took him over to Dr. Gray and found an abscess four inches in diameter. Took him home, put him to bed and decided to make vaccine from pus. Next 24 hours temperature normal, and remained so for six weeks, when we x-rayed and found abscess half the size it was at first. Since the last x-ray picture, he has developed temperature which, however, is normal again. Sent more sputum to Hopkins and was found to be sterile. It looks very conclusively as if this were an aspiratory abscess.

Dr. C. S. Dodd, Petersburg:—I have two cases, one a child of 8, who developed after eight days slight fever and chill and was diagnosed as lung abscess. The other was in man about 30 years old. Physicians out in southwest Virginia had tonsils removed. For twelve days he got along all right, then chill began, followed by severe pain in one lung. X-ray showed lung abscess following tonsillitis. In both cases, although done under general anesthesia, an unusual amount of pus was found, and I concluded it was evidently due to aspiration. This pus trickled into the throat and evidently got into the lungs.

Dr. J. A. White, Richmond:—Dr. Porter's paper interests me for two reasons. Both his cases were operated on under local anesthesia and both were tubercular subjects. Most of the cases heretofore reported were operated on under general anesthesia and some of the reporters thought the secondary lung complication was due to aspiration of infected material whilst under the anesthetic. While this may be true of some cases, I think the more probable explanation is that of Dr. Porter that the infection is carried by the venous connection between the tonsils and lungs.

In the thousands of tonsil operations I have done, I have never been aware of any such unfortunate result, but it might have occurred without my knowledge as, until my attention was called to lung abscess as a sequel to tonsillectomy by Dr. Chas. Richardson's article, I had never followed up my cases. Since then, however, I have endeavored to do so but none of them, as far as I could find out, developed any trouble of this kind. The wonder is that it does not occur oftener when we take into consideration that we are operating on an infecting focus when doing a tonsillectomy—for unless the tonsils are diseased or infected they should be let alone—and it is easy to understand how the infective material can be transmitted by the blood stream, sometimes in the form of emboli, to other parts of the body.

Dr. Porter's cases were tubercular and more liable to be infected than healthier subjects.

This also gives rise to the question of the doubtful value of tonsillectomy in tuberculous cases. Possibly in these subjects electro-cautery or fulguration should be substituted for tonsillectomy as is suggestetd also in elderly persons,

THE USE OF PITUITRIN IN OBSTETRICS.*

By G. B. BARROW, M. D., Clarksville, Va.

A surgeon recently told me that he had seen several cases of rupture of the uterus from the use of pituitary extract in labor. A physician said he had used pituitary extract only once and got a ruptured uterus. Another physician said he had discarded his forceps. He had taken them out of his bag, and was using pituitary extract in nearly every case. With these statements in mind I am taking this opportunity to touch in a general way on the use of the extract of the posterior lobe of the pituitary gland in obstetrics.

The extract of the posterior lobe of the pituitary gland and forceps are powerful instruments in the hands of the obstetrician and, like the knife in the hands of the surgeon, it is not technical skill alone that counts, but there must be brains used as well as hands to get the desired result.

Pituitary extract is being abused, I dare say, more than forceps. When we take up the forceps we think of an operation, and to the timid this does not appeal. With pituitrin he thinks he has something up his sleeve that he can use to hurry the case and get back home and no one be the wiser. The faithful Old Stork doesn't travel fast enough for him. So he ties a Liberty motor to its back and starts it off on its journey. It misses the window and plunges headlong into the side of the house and falls bruised to the ground—crippled, and may be never able to visit that house again unless some surgeon happens to stumble on it, and, like the Good Samaritan, takes it home to his hospital and after a time sets it on its way.

Pituitary extract and forceps are two different things, acting by different forces, one from above—the other from below; one the uterine muscle, the other the muscle of the operator; one to stimulate the uterine muscle itself, the other to assist the uterine muscle to do its work. Therefore, they have different indications for use in obstetrics.

The old rule is, "When the baby has made no progress for two hours, apply forceps." There is no taking into account how hard the pains are or how much force the patient is exerting or has recently exerted to move the baby. This is important for, if there are sufficient pains and force and the baby not moving, forceps and not pituitrin would, roughly speaking, be indicated. On the other hand, if the pains are weak and there is no other reason why the child is not making progress, then pituitrin may be given in small doses, as need-

* Read at the meeting of the South Piedmont Medical Society, in South Boston, Va., November 23, 1920.

ed, to stimulate pains. The uterine muscle has the work to do, and if the muscle is tired out trying to overcome too much resistance, it needs assistance—the forceps or rest—and not something to force it to a last supreme effort which can only end in severe laceration or rupture of the uterus.

At full dilatation, if the woman is having hard pains that should move the child and examination shows that the head recedes and leaves the finger instead of forcing down and engaging and the patient is restless and anxious, this labor should be stopped with chloroform and an internal examination be made to ascertain if Bandl's ring is forming, a constriction high up in the cervix about the junction of the lower third of the uterus with the middle third, possibly a dimpling from the pulling up of the round ligaments and a rising up of the uterus with each pain, pituitrin should not be given, as there must be nothing done to raise intra-uterine pressure or the uterus will surely rupture. If the obstruction is slight, the forceps may be gently applied and a careful delivery made. If the disproportion is too great for the forceps delivery and you have practical circumstances for surgery, then section may be done. If surgery is not practical, you will have to resort to craniotomy. You may be tempted to give pituitrin under these circumstances but you must be sure of your ground before you take such a step. Here the forceps are far less dangerous to the mother and child, for you will surely lose the child in the event of rupture of the uterus though, if in a hospital with a competent surgeon at hand, it is not necessarily fatal to the mother.

In placenta praevia, pituitary extract may be used in very small doses if the indication is for more force to the pains to keep better engagement, which is sometimes the case. But here we must remember that in placenta praevia the lower uterine segment is weakened and thinned out and for this reason is in itself a predisposing factor in rupture of the uterus.

In "accidental hemorrhage"—premature separation of the placenta—where rapid delivery is indicated, pituitrin is preferred to the forceps. In the use of either, you have to secure full dilatation. In applying forceps, there is a large amount of blood lost. With pituitrin, you are able to keep up intra-uterine pressure throughout and also secure good contractions to deliver the placenta and clots. In the delivery of the afterbirth, its action is excellent as it gives contractions like the normal labor pains. It can be used before the uterus is empty—differing from ergot—and is far safer than the hands or instruments used in the womb. If strychnine or ergot has been given, pituitary extract must not be used until you are sure that their effect has worn out, as these drugs will greatly augment its action.

I have used pituitrin for the past eight years, not in the place of forceps, but used it when I thought the uterine muscle needed stimulating, in the dose of from one to ten drops, according to the amount of force needed. I cannot recall any bad effects I have gotten that I would not have gotten under the circumstances with other means.

Recently, I had a cross birth: the head in the right flank, the cervix rigid, the internal ring not dilated as there had been no engagement. Patient was having slight nagging pains. I gave her chloroform and did a cephalic version, holding the head in place until she came out from under the anesthetic; gave patient two drops of pituitrin and got a few pains. The head engaged, the pains slackened, and patient went to sleep. Five days later she started labor and had a nomal delivery.

Mrs. T——. History of hemorrhage and poor placental delivery. This had occurred after each of four births. She had a normal labor. As soon as the child was born I gave her five drops of pituitrin. The uterus contracted nicely with a normal delivery of the placenta and a normal amount of blood. I watched her involution; it was classical.

Pituitary extract and forceps must not be confused. They have different indications for their use; they act by different forces applied in a different way. Either may do harm by misuse and in careless diagnosis. The conscientious physician will use neither for his own convenience.

I want to outline briefly a technic I have used for some time—not as anything new, but to emphasize a few points in the use of pituitrin. It is a combination of pituitrin and chloroform delivery. At full dilatation, chloroform is started slowly and when patient is to the point of relaxing and the pains are losing their force, she is given two or three drops of pituitrin and its effect watched. The pituitrin

may be repeated as needed. Patient is kept at a ballance between the two in such a way that you have her in light relaxed anesthesia and with pituitrin enough to keep up sufficient force to the uterine contractions to keep the baby moving. The result is obvious. The woman is unconscious of the delivery. She is delivered in a relaxed condition which is ideal to prevent laceration and relieve as much resistance to the descent of the child as possible. She is under control at all times. Remove the chloroform when the head is born and you get a nice delivery of the placenta with good uterine contractions following. The woman usually wakes up when you deliver the placenta, without shock, comfortable and, I may add, grateful.

EXTRA-ABDOMINAL CAUSES OF ACUTE ABDOMINAL PAIN.*

By JAS. H. SMITH, M. D., Richmond, Va.

Pain in the abdomen often has to be regarded as an emergency symptom. Its interpretation, therefore, may not lend itself to leisurely reflection or the consultation of standard authorities and texts. In cases that demand prompt measures for relief, success depends very largely upon a knowledge of possibilities and a well ordered plan of investigation. For this reason I trust it will not be out of place to review briefly what might be referred to as the negative phase of the symptom abdominal pain, and to consider the subject clinically without reference to much brilliant work that has been done by physiologists to explain how confusing similarities arise.

It is doubtless the general experience of surgeons that drainage cases are less frequent now than formerly. This means that the profession and laity are better educated on the subject of "the acute surgical abdomen." This result is a distinct credit to the educational efforts of the surgeons. Still, nobody wants his abdomen opened unless necessary; and it is by no means reactionary to consider other causes of abdominal pain. One need not vacillate merely because he stops to take off his shoes before entering on holy ground.

For present purposes, the female pelvis will be regarded as part of the abdomen, with only passing reference to the importance of pelvic examination for the recognition of conditions not amenable to surgery or such diseases as acute salpingitis in which operation would be better postponed.

While the list is not at all exhaustive, conditions outside the abdomen likely to simulate acute disease of the abdominal organs will be discussed under the following heads: Spinal Cord Diseases; Angina; Lead Poisoning; Pneumonia; Rheumatic Conditions; and Disease of the Upper Urinary Tract.

Tabes and Other Spinal Cord Diseases:—It is safe to say that very few of us, in the presence of acute abdominal pain, attempt to elicit the knee-jerk or the pupillary reaction to light. These reflexes are abolished in locomotor ataxia with a high degree of constancy. If they were looked for, very few tabetics would be subjected to laparotomy for spinal cord diseases. True, these signs do not make the diagnosis of tabes. I have seen both in a woman with cholecystitis relieved by operation and showing no other evidence of cord trouble or syphilitic infection. But when present they will at least serve to stimulate further investigation for the familiar symptoms of tabes. The percentage of failure of the blood Wassermann reaction in locomotor ataxia is well known. If doubt still exists, recourse should be had to lumbar puncture.

Diseases of the cord and spinal nerve roots other than tabes may give rise to pain referred to the abdomen. Sensory or motor changes and sphincteric disturbances are symptoms which would invite attention to the spine. Sciatica or thoracic pain of intercostal distribution would also suggest a spinal origin of abdominal pain. Spondylitis with resulting pain that is at times limited to the abdomen has recently been emphasizel by Dr. Vander Hoof,[1] of Richmond. Such conditions are not likely to present an impelling picture of an abdominal emergency and, in the absence of imperative indications, the cord and vertebral column should be investigated.

Angina:—Abdominal pain may arise either in spasm of the cornary arteries (angina pectoris), or of the abdominal arteries, (angina abdominalis). The distinction is of little importance for our present purpose. In a middle-aged or elderly subject, one with apparent arterio-sclerosis, or who may be reasonably suspected of hardened arteries, whose pain seems to be more or less associated with excertion or emotional excitement, short-winded, wheezy, cyanotic or subject to substernal pain or oppression, with gaseous indigestion, or in

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the presence of increased vascular tension, the cardio-vascular system and kidneys should be carefully studied. Jaundice, even, may be added to the picture without altering its essential nature, since cirrhosis of the liver is not an infrequent accompaniment of the cardio-vascular state referred to. Patients of the sclerotic or atheromatous type are notably poor subjects for operation. When the degenerative state is ripened it is readily recognized, and the conservative surgeon hesitates even in the face of definite operative indications. It is in the moderately advanced or milder types of sclerosis that we should be particularly on guard against misinterpretation of abdominal pain.

Lead Poisoning:—Sporadic cases of plumbism may occur in any section of the country and severe abdominal colic is often the most prominent feature. On the other hand such tell-tale symptoms as wrist-drop or foot-drop may be lacking. I recall a case in which the diagnosis of acute cholecystitis was strongly considered. Fortunately, here also, we have simple and quite constant signs that, barring errors in interpretation, are almost conclusive. A lead line on the gums may be observed, and examination of the blood smear, which should be a routine procedure prior to operation, will almost invariably reveal a coarse stippling of the red cells in plumbism. It is an interesting conjecture as to how many lead coils are in use under the Eighteenth Amendment to the Federal Constitution.

Pneumonia:—Generally speaking the foregoing conditions are afebrile and not accompanied by leucocytosis. Those remaining to be considered may be and often are so characterized. It is of primary importance that abdominal operations should be preceded by examination of the chest. Almost any lesion of the heart, lungs or pleura may be associated with pain referred to the abdomen. Particularly, however, is this true of pneumonia associated with diaphragmatic pleurisy. The white count is not likely to be of much assistance in differentiating these conditions from an acute abdominal inflammation like appendicitis. If the count is strikingly high, say over 21,000, the mind is apt to revert again to pneumonia. The information that can be furnished by the roentgen-ray in acute pulmonary pathology is perhaps not as widely appreciated as it deserves to be. But its limitations are apparent in the fact that it is not always accessible and the time required for diagnostic plate work cannot always be freely allowed.

Rheumatic Conditions:—This term is used for lack of a better one to describe a triad of symptoms in which colic may be prominent. In 1895, 1900, and again in 1904, Sir William Osler[2] wrote on the subject of visceral crises occurring in erythematous skin conditions. Briefly stated, his observations were somewhat as follows: Certain skin conditions apparently related in their etiology, running through the scale urticaria, angio-neurotic edema, erythema and purpura, may be grouped under the generic term, the erythemas. They are prone to develop rheumatoid joint conditions or even typical acute rheumatic fever. They are also liable to acute explosive attacks manifesting themselves through visceral phenomena, probably due to an angio-neurosis of the visceral mucous membrane or an inflammation of the visceral parenchyma. These were termed by Osler "visceral crises." Such crises he found to be most fatal when the kidneys bore the brunt of the attack. On the other hand, when the abdominal organs are involved, the picture may strikingly simulate an inflammatory lesion leading to operation.

In the 29 cases reported by Osler recurring attacks of colic were present in 25, sometimes with vomiting, sometimes with diarrhea. Most of his cases were in young people. Moderate fever is the rule in the acute phases, though a leucocytosis is not usually encountered. The protocols of Osler's cases clearly indicate the possibility of error in diagnosis. I have recently seen such a case with severe colic, vomiting and diarrhea following an urticaria in a male 41 years of age.

I do not think the mere presence of urticarial lesions should weigh very strongly against a diagnosis of acute intra-abdominal inflammation or obstruction. But when accompanied by diarrhea without leucocytosis, or when Osler's triad of symptoms of skin, joints and viscera presents itself, a rheumatic or a toxic condition would be strongly suggested.

The Upper Urinary Tract:—Though intra-abdominal, the kidneys and ureters are retro-peritoneal. Surgically, therefore, they are extra-abdominal. They probably represent the most frequent source of error in unwarranted laparotomies. Instances of either the surgical or the non-surgical kidney may lead to confusion. Dr. Peple,[3] of Richmond, has reported a series of cases of acute unilateral nephritis,

calling attention to the ease with which it may be mistaken for acute abdominal inflammation. I recently saw a man, medically wise though not a physician, so obsessed with the idea that his abdominal pain was due to his colon that I was quite prepared to agree with him. A little blood in the urine, however, led to the demonstration of a left kidney stone. Calculus, hydronephrosis, tuberculosis, pyelitis, tumor or cystic kidneys may cause misleading abdominal pain. The area of the abdomen affected is of little diagnostic help. Cecil,[4] of Los Angeles, has published an instructive article on the subject of abdominal pain in diseases of the kidney and ureter. In 28 per cent of his cases of calculus the pain was purely abdominal, and in 20 per cent of the whole series of calculus various abdominal operations had beeen d[illegible] without relief of symptoms, with a subsequent demonstration of the renal origin of the pain. Eight other cases of stone had been diagnosed as intra-abdominal conditions, usually appendicitis. This is startling. His figures in regard to hydronephrosis are equally impressive. Six out of twenty cases had been operated on and two others erroneously diagnosed without operation. These two conditions, according to Cecil, are the most common sources of error because of the severity of the pain accompanying them. In tuberculous kidney and pyelitis or pyelonephritis, the pain is not likely to be so severe and errors are less frequent.

It is not my purpose to discuss the differential diagnosis of urological conditions. I do wish, however, to emphasize the importance of urinalysis, history of vesical irritation, pain and tenderness in the flank or costo-vertebral angle and roentgen-ray studies when the picture of intra-abdominal emergency is suggested but not typical. It is, of course, not unusual to find a few pus cells and an occasional red cell in the urine of a patient suffering from an abdominal lesion. Particularly is this true in inflammation of an appendix lying in a retrocecal position and possibly adherent to the right ureter. But, when these elements are present in any considerable number, the urinary tract should be given careful consideration.

Looking for a moment at the opposite side of the picture, there are certain positive signs of intra-abdominal disease suggesting a more or less imperative need for surgical intervention. They are especially localized tenderness and rigidity, fever and leucocytosis, increasing pulse rate, and the symptom-complex of shock with pain in the abdomen. If the picture is at all complete, the situation does not call for refinement of diagnosis, but for prompt surgical relief.

Summary.

If we attempt to reduce the foregoing to a working formula, it may be constructed somewhat as follows:

When the local signs in the abdomen are not in keeping with the abdominal pain, suspect an extra-abdominal origin.

If there is fever, suspect a pulmonary lesion or infection in the urinary tract, and in young people especially rheumatic or other general infections.

In afebrile cases, investigate the spinal cord, the possibility of metallic poison, the urinary tract, and in middle-aged or elderly subjects the vascular system.

Preliminary to operation, the routine should include examination of the urine and blood smear and a white count. Roentgen-ray studies are most useful to determine the condition of the urinary tract and spine.

Finally, it may be added that while not all intra-abdominal causes of pain are surgical, neither does the determination of extra-abdominal disease exclude intercurrent trouble within the abdomen. I would not protest opening the abdomen when in doubt. I am merely urging a wholesome willingness to entertain a doubt.

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BORDERLINE CASES OF INSANITY.*

By ALBERT ANDERSON, M. D., Raleigh, N. C.
Superintendent, State Hospital, Dix Hill.

A great hospital, well equipped, built just below the high falls of the river for the purpose of saving the lives of those precipitated below, is plainly working on the wrong side. The work should be done in rescuing the one going easily down the current to the danger line. The method of building the hospital below the falls has been the one generally followed in saving the mentally sick for the last hundred years. To keep the types of dementia

* Read before the meeting of the Seaboard Medical Association, in Elizabeth City, N. C., December 7-9, 1920.

praecox, paresis, alcoholics and drug addicts, infectious psychosis, etc., from going across the borderline into chronic insanity, we have got to change our method of rescuing and saving on the right side. For a hospital to function in this way, our State must equip our present hospitals with all the preventive measures now known to mental medicine and we cannot be sufficiently equipped till our medical schools give as much attention to mental medicine as they do to physical. . Let every physician do his part in killing the false tradition that mental medicine has no cure for mental diseases. If this be your impression, I bring you a message of hope. Let us not forget that the first thing to do in curing any disease is to remove the cause; if that be not possible, then modify the cause.

Fortunately, the fine work done by the present State and local health boards in preventing more and more infectious diseases, contributes also a factor in lessening the number of mental cases. For in every case of typhoid and yellow fever, malaria, smallpox, diphtheria and venereal disease, there lies the possibility of mental disease, based upon physical causes. But I want to stress mainly the mental causes resting on psychological factors. We should face conditions—actual facts and not always theories. The way we challenge the real factors, fundamental principles in life, will spell success or failure as to our mental health. Emotional impulses come surging against the mind from business failures, disappointments in love, misunderstandings between friends, etc., and it depends on how we meet the conflict whether we become mentally sick or sublimate our troubles and reach higher mental levels. If we fail to meet the issue, fail to "Quit ourselves like men and fight," the issue has in it the possible factor to produce a psychosis.

How shall we prevent so many crossing the borderline? By the right kind of education. So-called education from incompetent teachers is bad and has the effect of accelerating the speed of the victim across the line. Education which is good and preventive must be found first in the home, church and schools in early life. During the first four or five years in the home and church, the basic principles of a sound mind, as well as a sound body, are laid. Here we see the importance of a good environment. Sickness, crime and alcoholism make the home environment bad, of course. Health, respect for law and order, reverence for spiritual things make the home environment good. The common every day things of life must be met by the whole process of education which, if good, is the best and only way of handling these successfully. We must train our children to overcome conflicts, obstacles and such like, by the right kind of educational training.

Some nine years ago, a friend of mine wrote this: "Think what it would mean to be able to appreciate the beginning of the conflict, to understand the nature of the forces involved before they had succeeded in impressing the whole psyche into service! Then would be the time to turn the forces aside into more useful channels—to sublimate the conflict."

Pus which is confined in the body must be set free or the pyaemia will kill your patient. The work of the suppressed conflict must produce disease or death. The scalpel of the psychiatrist must be the skilled work of psycho-analysis through faith and confession to his leader.

To sail the seas you must have a compass. If you steer your patient by the compass of truth—insist on his seeing things as they are instead of as they are not—"not making a certain port to the east by steering west"—you will relieve the patient. The stronger the operator in the fundamentals of character, the sooner the patient is restored.

Educating the mind from every source must be a "process of unfolding and development"—no cramming of mind for lessons and examinations must be allowed. Thoughts, emotions and will must be built like the brick or rock mansion.

The psychiatrist can successfully point the way for the patient to prevent a large number of mental wrecks. Just common sense and observation must be used in solving the mental problem as well as the physical. Nutrition, exercise, candor, honesty, persistency and such other things go into the problem of mental health. Proper clinics should furnish the necessary prescriptions. These clinics should be located at every state hospital at least, and other places where possible. Social workers trained for this work are needed, but social workers cannot find all the cases needing their

help, but with the aid of every general practitioner, all directed by the skilled psychiatrist, much can be done for preventing. Keep in mind always that the mind and body are inseparable—that mind is superior in that it directs, feels and controls, and has in it immortality. Consistency in the work of making the mind durable is the goal. Do not overlook the obvious—be a careful inspector—a philosopher.

When a patient consults a doctor, he does so because of "pain, worry or unhappiness," and these are from the mind. Don't forget the mental factors—"the business of a happy life has its roots deep in the immortal soul." Consider the mental burdens as well as you would the physical.

Dr. William A. White gives the following practical things to be done:—

"1. The securing of legislation that places the responsibility for the care of the insane previous to commitment in the local health office.

"2. Every city of 100,000 inhabitants, or over, should have a psychopathic ward connected with its municipal hospital which is as accessible for the mental case as the other wards are for general medical and surgical cases. This ward should have an out-patient department.

"3. The organization of an after-care society to assist persons who have peen discharged from a hospital for the insane to get on their feet and to point out to them ways of avoiding the conditions which led to their breakdown.

"4. The passage of adequate laws for the control of the labor of women and children.

"5. Popular education. By the use of this term I am not merely dealing in a glittering generality that may mean nothing or everything. We have in this country nearly two hundred state hospitals for the care of the insane. These hospitals, each one of them, should be a center of information for the community in which it exists and its medical officers should use their position to spread information about mental disorders. The superintendent, or a member of the staff, should deliver one or more popular lectures each winter to which the public are invited. Much might be accomplished in this way if all hospitals would do this.

"6. Field work from the state hospitals and psychopathic wards as centers to study conditions under which insanity has developed, to furnish assistance to the hospital in dealing with its patients, and to co-operate with the after-care society.

"7. More liberal support by city and state of scientific research work in this field, especially along the lines of etiology and prophylaxis."

THE BLOOD CULTURE VS. WIDAL IN TYPHOID INFECTIONS.*

By ALEX. F. ROBERTSON, JR., M. D., Staunton, Va.

Typhoid infections, as we all know, are true bacteremias. The most common offending organism of the group is the bacillus typhosus—the cause of our text-book cases of typhoid fever. Next in frequency is the bacillus paratyphoid A—the cause of many of the milder cases. The least common is the bacillus paratyphoid B—characterized by a rather sudden onset and marked enteric symptoms. This type is rarely seen in the United States. These organisms enter the body by way of the gastro-intestinal tract and, after a prodromal stage of incubation, varying from three to twenty-three days, the disease is ushered in. Since these bacteria invade the blood stream early, we naturally look for diagnosis in blood examinations and only in this way is a positive diagnosis made. The two methods used are the Widal test and the blood culture.

The Widal is an agglutination test applied by Widal in 1896 to the diagnosis of typhoid fever. Agglutinins are antibodies manufactured by the blood to combat the invasion of bacteria. The formation of agglutinins may be stimulated by the living organisms, as in an actual case of typhoid fever; or by the dead organisms, as in prophylactic vaccination against typhoid. The agglutinins are contained chiefly in the blood serum. In making the test, various dilutions of the patient's serum are mixed with a fresh culture of bacillus typhosus; B. para A, or B para- B, and observed under the microscope. In a positive test the typhoid bacilli, which are actively motile, may be seen to lose their motility and clump together (this process being termed agglutination); while in a negative test there is no loss of motility or clumping. The Widal

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may be positive as early as the third day of the disease, but usually not until much later. About 20% of typhoid infections give positive reactions in the first week; about 60% in the second week; 80% in the third week; 90% in the fourth week; and 75% in the second month. The reaction may be negative one day and positive the next and often repeated tests are necessary. Occasionally the positive test occurs for the first time during convalescence and, at times, it may be absent, the diagnosis being confirmed by a positive blood culture.

The usual method for collecting blood for a Widal is to cleanse the ear or finger with alcohol, prick it with a needle, and deposit a drop of blood on a clean slide. This is allowed to dry in the air and is then mailed.

The blood culture is an isolation of the actual offending organism, by transferring a small amount of blood, taken under the strictest aseptic precautions, to suitable culture media. As immunity develops, the organisms are found with diminishing frequency in the blood so that our greatest number of positive results are exhibited early in the disease. Of 85 cases in the first week (reported by Parks), positive cultures were obtained in 93%; of 198 cases in the second week, 76% were positive; of 115 cases in the third week, 58% were positive; and of 55 cases in the fourth week 33% were positive. These figures indicate that the blood culture shows the greatest number of positive tests in the first week, while the Widal shows the greatest number in the fourth week.

The easiest method of taking the blood for cultures is by means of a sterile vacuum tube, commonly used for collecting blood for Wassermanns. Strict asepsis is essential, for if the culture is contaminated by organisms from the air, or skin of the patient, it is worthless. The antecubital space, at the bend of the elbow, should be scrubbed with soap and water and then painted with strong tincture of iodine. Several minutes after the iodine has been applied, it may be removed with alcohol to obtain a better view of the veins. A piece of rubber tubing, encircling the arm and clamped with artery forceps makes a convenient tourniquet to bring the veins into prominence. Having prepared the arm, the cap may be removed from the vacuum tube and the stilet taken from the needle, using great care not to touch the point or shaft of the needle. The needle is now inserted into the vein, and the blind end of the vacuum tube—that part covered by rubber—is broken, allowing the blood to be aspirated into the tube until it is about half full. The needle is then withdrawn and the cap replaced on the tube, without touching the point or shaft of the needle. If no blood flows into the tube, further efforts may be made to enter the vein without withdrawing the needle from the skin. If the needle is without a doubt in the vein and there is no flow of blood, the tube has lost its vacuum and a fresh start should be made with another tube. The tube is packed, so that it will not be broken, and mailed to the State Board of Health or elsewhere for culture.

The typhoid organisms grow best upon a medium of 1% peptone in ox-bile and, for hospital practice or office work, it is most satisfactory to inoculate the media as soon as the blood is obtained. The State Board of Health will furnish, on request, sterile bottles of ox-bile media to any physician. A 5 or 10 c. c. syringe should be sterilized by boiling for five minutes. The arm is prepared in an aseptic manner as described above. A medium sized needle is attached to the syringe and inserted into the vein. Two or 3 c. c. of blood are aspirated into the syringe and transferred to the ox-bile medium after flaming the lips of the bottle and passing the needle through the flame of an alcohol lamp.

In comparison of the two methods described, the following points seem pertinent:

1. Positive tests are yielded earlier and more consistently by the blood culture than by the Widal, at a time when diagnosis, isolation and disinfection are most important.

2. The Widal is valueless in persons who have received prophylactic vaccination against typhoid and this includes about four million service men and nurses, besides an unknown number of civilians. Previous vaccination, of course, does not affect the blood culture.

3. As the typhoid group comprises three known organisms, and as the Widal is a specific and not a group reaction, three separate Widal tests must be run to exclude typhoid infection. Commonly, only the agglutination test for B. typhosus is made, leaving us in the dark as to the other two organisms. On the other hand, in the blood culture, all three organisms grow equally well in ox-bile medium.

4. The use of dried blood instead of serum, for the Widal, renders accurate dilution im-

possible and results correspondingly unsatisfactory.

In view of these facts, we consider the blood culture far superior to the Widal, and the day is probably not far distant when the Widal will be discarded as a test for typhoid infections.

When the straight blood is sent to the State Board of Health, cultures are made from the clot and Widals are run on the serum and if both tests are negative, we are fairly safe in excluding typhoid infections.

MUCOUS COLITIS.*

By GEO. P. HAMNER, M. D., Lynchburg, Va.

Mucous colitis (myxomembranous colitis) is a disease about which little can be found in medical literature, and about which there is seemingly little known, as its recognition is infrequent. It may be defined as a condition characterized by the formation in the large bowel of great quantities of abnormal mucus. The disease may occur at any period of life from infancy to old age, and is encountered in males quite as commonly as in females. The importance of its recognition is evident if we realize that, although at times the condition of the bowel may be merely incidental to more important lesions, it is often most prominently associated with states of serious physical debility or of mental instability. It may not be the sole cause of these, but it does strikingly increase their manifestations, and its cure is not infrequently accompanied by their disappearance.

In severe mucous colitis the three outstanding manifestations are: abdominal pain, intestinal putrefactive toxemia, and neurotic manifestations. Whether the patients are classed as suffering from colitis, or from neurasthenia or psychoneurosis, or from autointoxication, the mucous colitis must be treated or the patient will not be relieved of the other manifestations.

Usually the patients do not seek a physician because of the colitis, but rather for persistent constipation, abdominal pain or distress, lack of physical energy, obstinate or recurrent headache, failure of physical or intellectual vigor, mental depression or general and complete nervous breakdown. Though they have noted strings of mucus in the stools, very few mention this unless interrogated. Hence, in a patient showing nervousness, depression of spirit, and lack of usual forcefulness, it is well to search for a possible mucous colitis.

Diagnosis.

As there is no distinguishing factor other than the mucus, the diagnosis rests on: (1) the observation of the patient of the passage of the mucus, either as strings accompanying the feces or as complete mucous stools: (2) the findings of the characteristic mucus in the stool submitted: (3) the detection of the characteristic mucus after a test dose of castor oil or a test colon irrigation, or (4) by the observation through the sigmoidoscope of a dry mucous membrane in the upper rectum to which are clinging the heavy, tenacious sheets of mucus.

Mucus.—This is tenacious and appears mostly in yellow, brown or sometimes black jelly-like masses or in more or less desiccated plaques, strings, ropes, or scab-like masses or membranes. The string may be many inches in length and, on being teased out in water, prove to be casts of the bowel, or broad ribbons. Patients sometimes mistake them for intestinal worms. The mucus adheres with great tenacity to the wall of the bowel, so that when encountered postmortem it is removed with difficulty, even with forceps; von Noorden reports the he was unable to drive it off with a strong stream of water from a hydrant. It is not uncommon to find blood spots on the expelled mucus, as if it had been torn away like a scab. In some cases the mucus has a peculiar odor that is entirely different from that of the stools, slightly suggestive of dead fish before they become offensively putrefactive. Besides mucus there may be occasionally found quantities of blackish or brownish, gritty, irritating intestinal sand.

Pathology.

The pathologist may report indefinite changes; the colon may show very slight alterations or even rarely no recognizable lesion, but usually the mucous membrane is more or less damaged. In some cases Keith has demonstrated postmortem, the absence of the normal nerve elements of Auerbach's plexus with consequent cecal and colonic stasis. The colon

* Read at the meeting of the South Piedmont Medical Society, in South Boston, Va., November 23, 1920.

is often redundant or looped, and there is sometimes laxity of the abdominopelvic walls with ptosis of the transverse colon and of one or both flexures, with perhaps a movable cecum. In the persistently toxic cases, pyorrhea alveolaris and gastric achylia are not uncommon findings. Not infrequently the descending colon is found in spastic state.

Pain.—In a large proportion of the cases a certain amount of discomfort is manifested at some stage of the disease. This may range in intensity from nothing more than a slight soreness to paroxysms of the most distressing colic; its location may be variable or constant, and, in the latter event, it has not infrequently led to a futile operation for some supposedly serious abdominal or pelvic lesion.

At times, the entire colon or a greater part of it, is found to be tender. The colic is probably the direct reult of the attempt by the bowel to expel the long-retained and clinging mucus; and persistence of the attacks may be taken as an indication that not all of the mucus has been liberated. The mucus, acting as an irritant, induces spasmodic contraction of a portion of the colon, and the pain is due to tension in the distended portion above this. The spasms do not produce the painful manifestations, for, as Hurst has shown, bowel pain comes from distention, not from contraction.

The pain ceases after the re-establishment of the peristaltic reflex with dilatation below and contraction above.

Constipation.—This is almost invariably present in some form, and as Hurst sets forth, "it is not necessarily a condition of infrequent defecation, but is rather one of insufficient or retarded defecation." In some cases several stools a day may be passed, and yet constipation exists; and colon irrigations have shown that there may be considerable cecal retention of putrefactive contents, though the bowels seem freely open.

Intestinal Putrefactive Toxemia.—Without doubt, the neurotic manifestations and the condition of mental and physical fatigue may in many instances be traced directly to a chronic toxemia caused by the absorption of harmful chemical substances formed in the bowel. The subject of intestinal toxemia is too large to be dealt with here; it is important to remember, however, that quite often the treatment of mucous colitis involves extensive consideration of the associated toxemia. There may be mucous colitis without putrefaction of the colon contents or there may be putrefaction of the colon contents without colitis, but the two conditions are often associated.

Nervous and Psychic Manifestations.—Many of these patients, though not by any means all, have a variety of nervous symptoms. These may range all the way from a simple impression, ability and hypersensitiveness in insignificant matters to severe nervous breakdown, or such mental instability, lack of self-control and irresponsibility of action as to bring them to the borderline of insanity; and it is often quite impossible to decide whether the mucous colitis or the psychoneurosis is the primary condition. Conspicuous in many are lack of self-confidence, absence of initiative, spells of discouragement, and fatigability, both mental and physical. Interesting are the phobias, such as dread of visitors, of riding in a train, and of being alone at home or in the city streets. (Case of F. D. also W. C. C.)

The colitis may begin with, or be aggravated by, any kind of a nervous strain, such as worry over money matters, over a wayward child, a husband who is dissipated, or some skeleton in the closet; or assumption of some heavy responsibility that seems utterly beyond the patient's powers.

Prognosis.

Many of these patients in serious nervous states, after the cure of the bowel trouble, have ceased to be more than normally nervous; and because of this fact the bowel treatment is stressed here. I believe that in a large number of cases a medical cure is possible, but usually after persistent treatment for a long time; and with the full co-operation of the patient.

Treatment.

In determining this, two facts stand out prominently; (1) that retained mucus is harmful mucus, and (2) that the cure requires a long course of treatment. I endeavor to impress on my patients that they cannot expect any magical improvement, and that, without their full co-operation combined with patience and persistence, I can accomplish nothing toward relieving them.

I consider the daily colonic lavage with a solution of sprudel salts the treatment par excellence for removing the mucus and relieving the toxemia. This may be supplemented as occasion requires by large doses of castor oil by mouth to facilitate the passage of the mucus. The enemas should be taken with the patient on the left side and hips elevated slightly higher than the shoulders and the solution should be as hot as can be comfortably borne.

Recently, transduodenal lavage with a 4 per cent. sodium sulphate solution has been used with reported success. I have not yet used it for this purpose.

There should be insistence on regularity of bowel movements, but restriction of the use of enemas and colon irrigations. It is easy for the patient to acquire the habit of using these two or three times a day, if permitted to do so. The diet must be ample, but the use of bran, coarse foods and too much fruit should be discouraged in the beginning as they may do more harm than good and undoubtedly more harm than a mild tonic laxative. The best of laxatives is usually a softening and bulk producing agent, such as liquid petroleum, cascara agar, phenolphthalein agar or small doses of some form of magnesia. If these are not effective they may be supplemented by one of the tonic laxatives, cascara, rhubarb, aloes, senna, or senna with sulphur in the form of compound licorice powder (the latter is a favorite with me). A valuable measure also is the retention over night of from four to sixteen ounces of cottonseed or olive oil. In these chronic cases the drastic cathartics may be successful in removing mucus, but should be employed only seldom. If after a long and faithful trial such measures as these do not overcome the stasis and the toxemia, the question of surgery should be seriously considered. The numerous surgical procedures for this trouble have no place in this paper, hence I do not mention them. Hemorrhoids are a bad complication, as they prevent the use of irrigations, enemas or such strong cathartics as castor oil. They may be treated by the nightly instillation into the rectum by means of a soft rubber ear syringe, of 60 c.c. of warm olive oil or cottonseed oil to be retained over night, but only until the patient is able to have them removed surgically.

The diet may have to be modified to suit the specific cases and according to the condition of the stomach and upper bowel (achylia, hyperchlorhydria, gastric atony, etc.), and to overlook these is to fail in the treatment; but in general, at the outset, the diet should be of the bland, lactofarinaceous type.

Of course, if there exists any definite surgical condition in the abdomen, such as appendicitis, cholelithiasis, adhesions, bands or pelvic disturbances, it should be overcome.

Occupation, recreation and rest in proper proportion should be advised. The patients should not be allowed to coddle themselves. They should get up before breakfast and not lie in bed late in the morning; they should, however, recline at a later hour in the day, when this is possible, perhaps best for one or two hours after the midday meal, and they should retire early. They should give less time than usual to the responsibilities of social or business life, or give them up for a time entirely, and they should not receive too many visitors. Introspection should be strongly discouraged at all times. And one of the greatest helps in the treatment is a change of scene to get away from oversolicitous or nagging friends, or from the monotonous routine of home life or business.

He was a physician of deep perception who replied to the inquiries of the over-anxious wife: "Madam, your husband needs a rest. One of you must take a vacation."

Treatment of Attacks of Colic:

(1) Relieve pain and neurotic symptoms.

(2) Promote evacuation of mucus.

Rest in bed, large dose of bromid, ½ to 1 dram. Hypo. Atropine, Gr. 1-6, hot water bag, electric pad stupes, hot bath to abdomen. Morphine very carefully on account of habit. Large dose castor oil; colon irrigations warm soda solution.

Irritants, such as silver nitrate should not be employed. Combination of castor oil, by mouth, codein and atropin, hypo., and colonic lavage will be followed often by relief and sleep. If this does not give relief, a good plan is to put the patient into the knee-chest position and inject slowly into the colon from one-half

to one pint of warm olive oil or cottonseed oil, to be retained over night, or as long as possible. The injection is often followed by the passage a few hours later, of the oil and an abundance of mucus, with the disappearance of the colic.

BOILING WATER INJECTIONS IN HYPERTHYROIDISM.

By A. B. GRUBB, M. D., Cripple Creek, Virginia.

The injection of hot water into the thyroid gland gives such happy results that it bids fair to replace the more dangerous operation of partial thyroidectomy. It can be done in the most isolated country district with as good, or perhaps better, results than the most skilled surgeon would obtain in a large hospital.

Dr. Crile found that many of these hyperthyroid cases died of fright at the thought of an operation and so he, no doubt, saved many lives by "stealing" the thyroid. He proposed to the patients that he would give them treatment by inhalations of medicine. On the day for the operation, he mixed ether with the "inhalations" and, while the patient was under the anesthetic, removed the thyroid with greater safety than had the patient been frightened half to death at the thought of an operation.

So, the main feature of the hot water injection is that practically all fright is eliminated. The "operation" is done in the patient's own room while the members of the family come and go at their usual work. The psychic effect of this is quite different from the case where fifteen or twenty neighbors call to bid good-bye to the patient who is "going to the hospital to be operated on," and especially where the neighbors mix a great many tears with their good-byes.

The symptoms of hyperthyroidism, such as rapid pulse, tremor of the hands, emaciation, and weakness, begin to improve almost the day after the injection.

Recently, a surgeon of Seattle has used the cautery on the thyroid and prefers it to the regular thyroidectomy, though he does not refer to hot water injections.

The advantages of hot water injections might be summed up as follows:—

1. The mortality, so far, is apparently nil.
2. There is no fright.
3. No scar is left unless an abscess forms and then it is small.
4. The expense to the patient is practically nothing compared to a long hospital bill, especially when the hospital is at a great distance.
5. There probably is never any tetany following this method.
6. The technique is simple. The injections must be preceded by local anesthetic, such as cocaine, procaine, etc. Probably, procaine is best. The water does not have to be boiling, but just up to past scalding hot.

Correspondence

Why Not Reorganize Now To Fight Cancer?

February 23, 1921.

To the Editor:

Note that the *22* on February calendar is of the *color of blood* and then ponder over all that it signifies. It clearly demonstrates that a benefaction fixes its benediction for all time. This object lesson should inculcate ennobling thoughts and urge to constructive action. Are we as the guardians of health doing our full duty? Let each physician in this State frame his own reluctant and void apology.

I have been disposed to know why our State Board of Health and the rest of us have been so silent on the most demanding question of the time—Cancer. I recall that I read a paper as far back as 1909,* giving some facts about cancer and urging the organization of a cancer association in this State. The association was put on foot here and later on we organized one in North Carolina. That elegant gentleman and physician of Raleigh, Dr. W. S. Rankin, gave us valuable assistance, and I am led to think that he has not ceased lending his interest along that line. We made a splendid start and the good done then has not been forgotten by the people whom we were trying to serve. But many of the doctors, eager to care for the boys who were spilling their blood for the integrity of the nations, left our ranks depleted, and those who remained here were so taxed to care for the sick at home, that it is not becoming to use words that may seem harsh—only enough to review the past. Still, it appears to me that we have had ample time to readjust the lapse and I am writing this simply to remind them

* Va. Med. Semi-Monthly, Sept. 23, 1910. Transaction Med. Soc. of Va., 1909.

that we have a great and imperative obligation resting upon us—to teach the laity that prophylaxis is the only means by which we can rid ourselves of the havoc of cancer. We know it and the people should be made to know it.

Therefore, I call upon the medical profession of Virginia, especially the members of the State Board of Health, including all county and town welfare workers, to begin at once to mobilize and put in motion all means possible to demonstrate and impress the positive ways and methods of preventing the incidence of cancer. Time wasted, is time forfeited. Begin Now.

Stephen Harnsberger.

Public Health

In The Tuberculosis Field.

Teachers' Cottage Opened.

A building for the public school teachers of the State was formally opened and accepted at Catawba Sanatorium on February 12th. This latest addition to Catawba's equipment will care for sixteen patients and brings the total capacity of the sanatorium to approximately 300 patients. The new building was made possible when the legislature of 1920 appropriated $10,000 toward its construction, matching $10,000 which had been raised by the State Teachers' Association.

The structure is brick, on a concrete foundation and has attractive appointments. It is heated by steam; has a comfortably arranged lounging room and a wide sleeping porch commanding a view of Catawba Valley. Two patients occupy each of the eight rooms, with individual entrance to the porch and to the hall which runs the length of the building at the rear.

Seal Sale Report For 1920.

Reports received by the State Tuberculosis Association indicate total sales of Tuberculosis Seals for Christmas 1920, amounting to about $45,000. More than half this amount will be spent through local agencies in tuberculosis work and a percentage will go to the National Tuberculosis Association. The State Association will receive perhaps $16,000 to carry on its clinics and other activities during 1921. It is from the sale of Christmas Seals that the work of the State Association is financed.

Dr. Roy K. Flannagan, since September director and executive secretary of the State Association, has resigned that office, effective May 1st. He will return to duties in the State Health Department, and his successor in the Tuberculosis Association will be selected in March.

To Enlarge Blue Ridge Sanatorium.

At a recent meeting of the committee of the State Board of Health for Blue Ridge Sanatorium, plans were discussed for new buildings at that institution. Plans will be drawn for a new convalescent cottage, a new administration building, and probably a new infirmary. It is intended to make all additional buildings of more permanent type than those first erected. The report of Dr. Walter C. Klotz, medical director, for the quarter ending December 31st, showed that 255 patients have received treatment at Blue Ridge Sanatorium since the institution was opened; that of the 52 patients discharged during the quarter, 38 were "distinctly and permanently benefited," and of the remaining 14, four did not stay in the sanatorium long enough to be included in any classification.

Blue Ridge Sanatorium, Charlottesville, is the youngest of the three tuberculosis sanatoriums conducted under the management of the State Board of Health.

Bequest For Tuberculosis Work.

The will of a resident of Roanoke, Virginia, recently offered for probate, contains a substantial bequest for the Tuberculosis Foundation of Virginia, Inc. The Tuberculosis Foundation has for its purposes the sanatorium care of indigent consumptives and research work in tuberculosis. One of the interesting provisions under which the Foundation operates is that every dollar it receives shall be invested and only the interest is to be used for its work. By this provision, the organization will be perpetuated, and bequests, or other contributions it receives, will do good for all time in the fight on tuberculosis. There are no overhead expenses connected with the Foundation, one hundred cents of every dollar being permanently invested. This should certainly appeal to the business man, and it is hoped that many men will remember the Foundation in their wills. B. L. Taliaferro.

Proceedings of Societies

Summarized Financial Statement for 1920.

Received from former treasurer	$ 1,795.06
Received from subscriptions to V. M. M.	251.90
Received from miscellaneous sources	74.47
Received from bank interest	47.14
Received from membership assessments	7,290.55
Recieved from advertising revenue	5,908.43
Total receipts	$15,367.55
Expenses December 1st, 1919, to December 31st, 1920 (thirteen months), account administration of affairs of the Medical Society of Virginia	$ 2,399.20
Expenses of publication of Virginia Medical Monthly from November 1st, 1919, to December 31, 1920	11,770.89
Total expenses paid	$14,170.09

Condition of treasury of the Medical Society of Virginia at close of business December 31st, 1920.

Assets:

Cash in bank	$1,197.46
Earned advertising revenue, uncollected.	1,587.78
Unpaid membership assessments	1,315.55
Total	$4,100.79
Liabilities	$1,359.89
	$2,740.90

Liabilities:

Bills payable	$ 653.89
Probable N. G. assessments	600.00
1921 assessments paid in advance	106.00
	$1,359.89
Net Assets	$2,740.90

This statement shows the largest collections in the history of the society due of course to the fact that assessments were increased for the year 1920. The number of delinquents was decreased from more than six hundred to about one hundred and ninety. This was accomplished by continuous correspondence with these members in addition to mailing bills and notices each month at great expense in time, stationery and postage. Members should relieve the society of this expense, which amounted to about two hundred dollars last year, by paying their assessment on receipt of first bill. At this writing we are getting out our second notices for 1921 to about thirteen hundred members. Members should make note of the fact that our revenue from advertising including outstanding accounts was greater than that from members assessments. They should also make note of the fact that the cost of publishing the Virginia Medical Monthly was more than six dollars and fifty cents per member. To hold this advertising revenue it is essential that our advertisers should always have your business.

G. H. Winfrey,
Secretary-Treasurer.

The Va. State Board Of Medical Examiners,

At their semi-annual meeting in Richmond, in December last, licensed twenty physicians to practice in this State—eleven by examination and nine by reciprocity. The following is an alphabetical list of applicants licensed at the December meeting:—

Dr. Richard E. Albert, Portsmouth, Va.
Dr. John Thomas Daves, Baskerville, Va.
Dr. A. S. Grussner, Craddock, Va.
Dr. L. H. Hoover, Petersburg, Va.
Dr. W. C. Mason, Louisa, Va.
Dr. W. A. Morgan, New York City.
Dr. T. W. Nelson, Richmond, Va.
Dr. J. H. Royster, U. S. S. North Dakota.
Dr. A. J. Russo, Norfolk, Va.
Dr. G. B. Setzler, Charlottesville, Va.
Dr. J. H. Smith, Louisa, Va.
Dr. Claude E. Stump, Richmond, Va.
Dr. A. R. Tucker, Raleigh, N. C.
Dr. Warren T. Vaughan, Richmond, Va.
Dr. R. A. Vonderlehr, Richmond, Va.
Dr. W. W. Waddell, Charlottesville, Va.
Dr. E. W. Walker, Exeter, Va.
Dr. R. E. Watson, Morgantown, W. Va.
Dr. H. W. Wood, Maben, W. Va.
Dr. C. L. Zimmerman, Roanoke, Va.

The Tri-State Medical Association of The Carolinas and Virginia

Held its twenty-third annual session in Spartanburg, S. C., with a good attendance. Interesting papers and pleasant social features enhanced the natural attractions of Spartanburg and a good time was enjoyed by all present. Norfolk, Virginia, was selected as the place for meeting in February 1922.

Officers elected for the ensuing year are: President, Dr. W. W. Fennell, Rock Hill, S. C.; vice-presidents, Drs. H. R. Black, Spartanburg, S. C., J. T. Burrus, High Point, N. C.,

and Karl S. Blackwell, Richmond; secretary-treasurer (unanimously re-elected), Dr. James K. Hall, Richmond. New members of the executive council, elected for a three-year term, are Drs. D. L. Smith, Spartanburg, S. C., Chas. O'H. Laughinghouse, Greenville, N. C., and Joseph T. McKinney, Roanoke, Va. Dr. F. C. Rinker, Norfolk, was elected to fill the unexpired term of Dr. James K. Hall, of Richmond, resigned, as a member of the executive council.

Fredericksburg Medical Association.

The local society formerly known as the Spotsylvania, Stafford and King George County Medical Society was recently reorganized in Fredericksburg, Va., and the name changed to the Fredericksburg Medical Association. Dr. W. A. Harris, Spotsylvania, was elected president, Dr. Roderick Dew, Woodford, vice-president, and Dr. C. Mason Smith, Fredericksburg, secretary. Papers were read by Drs. R. J. Payne, of Fredericksburg, and T. Welch Dew, of Bumpass. The next meeting was scheduled for March 25.

Secretary's Announcement

Recommendations for 1921.

1. The organization of a component society in every county in the state or in such groups of counties as will produce the best results. Our state legislature meets next winter with the strong probability of many matters affecting the practice of medicine and medical education coming before it. For your legislative committee to protect and advance your interests your county organization should keep in touch with your delegate and senator. It is hard to do this as individuals, easy as an organization.

2. The launching of a concerted movement on the part of the medical profession and the state health authorities looking towards the control of cancer. The public needs education on this dread malady, the general practitioner needs the latest information available on this subject, and many communities need the special equipment, x-ray, etc., that is required for proper diagnosis. Typhoid fever and tuberculosis are yielding to this combined attack and while none of the methods required in handling these plagues will reach cancer, other states and communities have demonstrated the fact that cancer can in large measure be controlled. It is time for the medical profession to go after this insidious disease and to get in time all of the cases that can be reached.

3. The presentation to the next state legislature, with all the influnce at the command of the medical profession, of a constructive program of legislation looking to the greater protection of the public from frauds, quacks, and nostrums; adequate protection of the title "Doctor" and its abbreviated form; advancement of medical education and support which the State Board of Health may need to get its recommendations through.

Business Department.

For the benefit of members of the state society arrangements have been made with one of the largest manufacturing stationers in Richmond to supply our members with office equipment of all kinds promptly and at reasonable prices. Loose leaf ledgers, card filing systems, steel cabinets, check protectors, fountain pens, printing and engraved stationery can be obtained promptly by sending orders in to this office. The regular prices are charged in all cases while the salesman's commission goes towards maintaining the revenue of the society. This departure was found necessary on account of the anticipated decrease in the advertising revenue and the necessity for increasing the ability of the society to finance its organization work. A considerable number of the members of the society are placing their automobile insurance through this office. All members who carry this insurance should place it with us. Adjusters will be secured in all of the principal cities of the state and your losses will be settled promptly. The manifest advantages of having your claims handled by a large organization are manifest. Based on the experience of the company our policy holders will make a saving of thirty per cent. in their insurance costs.

A large number of members will get their second notices of the annual assessment this month for 1921. Please do not make it necessary to send another. In case you find it inconvenient to pay now, send a post-dated check. Date it April 1st or May 1st and it will not be deposited until that date. This will relieve the office of a repetition of detail work and a heavy postage expense.

Several requests have been made to this office to get for members exact costs of disability in-

surance. This covers the payment of stipulated amounts to members who are temporarily or permanently disabled on account of disease or accident. The Travelers Protective Association handles a part of this insurance for their members at fraction of the cost of the same insurance in the stock companies. It will require considerable work to establish rates but, if a large number of members are interested, a statement will be presented showing the exact costs. If you are interested say so.

The Truth About Medicine

During January the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

Calco Chemical Co.:
Cinchophen Tablets.
Hynson, Westcott & Dunning:
Globules of Benzyl Benzoate.
Heyl Laboratories:
Acriflavine.
Proflavine.
Intra Products Co.:
Calcium Cacodylate—IPCO.
Winthrop Chemical Co.:
Salophen.
Morgenstern & Co.:
Salophen.

Book Announcements

Practical Tuberculosis. A Book for the General Practitioner and Those Interested in Tuberculosis. By HERBERT F. GAMMONS, M. D., Superintendent Woodlawn Sanatorium, Dallas, Tex.; Asst. Instructor, Clinical Medicine, Baylor Medical College, Dallas; formerly connected with various T. B. Sanatoria. St. Louis. C. V. Mosby Company, 1921. 12 mo. 158 pages, with illustrations. Cloth, Price $2.00.

Special Measures Against Introduction Of Typhus.

In view of the increasering number of vessels arriving at ports of the United States during the last six months with typhus infection on board, the Public Health Service is taking unusual precautions to prevent its further introduction into this country. In support of the action taken, should any vessel carrying passengers arrive from European ports without American consular bill of health appropriately countersigned by a medical officer of the Public Health Service, where such officers are on duty, delousing of arriving passengers shall be enforced at quarantine stations and the personnel held in detention for the completion of twelve days after delousing is completed.

Chaulmoogra Oil and Tuberculosis.

The recent widely circulated statement that the U. S. Public Health had found that chaulmoogra oil was as efficacious in the treatment of tuberculosis as it had been shown to be in that of leprosy is said by Surgeon General Cumming to be unwarranted. Experiments made some years ago with the oil gave no definite results. Recent experiments with the ester, or derivatives, have been begun because of hope based on some similarities between the bacilli of leprosy and those of tuberculosis; but these have not proceeded far enough to indicate what results will be obtained.

The Watering Places Of Switzerland

Is a booklet recently issued by the Official Information Bureau of Switzerland. Any physician interested may secure a gratuitous copy by writing the Bureau, 241 Fifth Avenue, New York City. An interesting account is given of the country and of the climate, location, etc., of its most interesting health springs. Photographs of some of these resorts are given as also analyses of the waters of the springs. Apart from its interest to physicians in recommending these foreign resorts to their patients, the booklet will be found interesting from a geographical point of view.

To Abolish Yellow Fever At Vera Cruz.

Work was begun the first of February by a corps of doctors and nurses, under the auspices of the Rockefeller Foundation, to bring about the extinction of yellow fever, which caused a number of deaths at Vera Cruz, Mexico, last fall. Although the disease disappeared almost entirely during the winter, the entire population is being inoculated with the Noguchi serum for fear it may reappear this spring.

Work Of American College Of Surgeons To Be Explained To South American Surgeons.

Dr. Franklin H. Martin, secretary-general of the American College of Surgeons, recently went to South America for the purpose of explaining to South American surgeons the work of the American College of Surgeons and inviting them to come to this country rather than to Europe to pursue their studies.

Virginia Has Secured A Dental Director.

The State Department of Health has secured the services of Dr. N. Talley Ballou, recently of Portsmouth, as director of oral hygiene for the State. This is the beginning of an effort to make dental clinics available all over the State. Dr. Ballou will enter upon his duties sometime in April.

Virginia Medical Monthly

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B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
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A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D.,
Editor.

G. H. WINFREY,
Business Manager and Secretary-Treasurer.

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Editorial

Foreign Protein Injections.

The attention of our readers is directed to a series of articles on Foreign Protein Therapy which has been published recently* in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. This subject has been treated in connection with a number of articles on vaccine and serum therapy. The timely consideration of this important field of treatment is to be appreciated by discriminating practitioners. For the past six years, under the influence of vaccine and serum treatment of certain diseases which have yielded with remarkable success to definite and scientific use of these agents, a wider and rather indiscriminate use of biologic products has become popular with doctors. Every infectious disease, whether scientifically recognized, was attacked by some vaccine, serum or biologic substance. As a result of the widespread use of these agents, aided by the "literature" distributed to the profession by manufacturing pharmaceutical concerns, the practice has taken on the proportions of a serious venture in medical therapy; not to say that is an evil. Let it be, of course, clearly understood that no reflection is intended upon great advances in scientific medicine which have been brought about by the use of typhoid vaccine, diphtheria antitoxin, antimeningococcus serum, etc.

Because of this, it is particularly fortunate that the editors of the JOURNAL OF THE A. M. A. caused to be written, by well known authors, some carefully considered articles covering in a general way what is actually known on this field. These authors have reduced to a readable form a vast amount of scientific data and have translated into practical suggestions for the busy practitioner truths from the fiction of this most fascinating domain of recent therapy of infectious diseases. In connection with the articles, the reader may be enabled to pursue his study further by availing himself of the references furnished in the footnotes.

Whether "the activation of leucocytes, the mobilization of enzymes or the permeability of the cell membranes" is the correct explanation, it is known by practitioners that the injection intravenously of bacterial vaccines, proteoses or certain hypertonic or hypotonic salts solutions, produces in the (protein) animal body a chill, sweating, fever, leukopenia followed by leucocytosis. This protein shock, apparently in some pathologic conditions, has been followed by a quickened recovery or an improvement more or less striking. So much has success attended the treatment, that the time has arrived for an evaluation of the status of this kind of therapy.

Miller points out that arthritis, typhoid fever, gonorrheal complications, pneumonia, certain dermatologic conditions, iritis, trachoma, diphtheria, anthrax, acute sepsis, tuberculosis and syphilis have been treated by protein therapy and he summarizes his observations on this subject by saying: "The immediate disappearance of all evidence of infection in a certain rather small percentage of cases following protein therapy is established." Cowie points out that the use of foreign protein therapy should be attended by an attempt to remove the focus of infection in every case. This, he observes, should be done in the interest of permanent improvement. Culver cites the use of protein therapy in psoriasis, chronic eczema and pyogenic skin infection; and Peterson closes his article by saying: "Nonspecific therapy is a new therapy so far as it represents a clear cut recognition that certain clinical results heretofore obtained in a variety of ways and by a number of different substances, were in reality due to a similar biologic alteration on the part of the organism.

* See J. A. M. A., Vol. 76, No. 5, page 308, etc.

Some of the results that we have previously accepted on a basis of specificity we now know to have been due to this non-specific effect. In differentiating between the specific and the non-specific phases of resistance and developing them in an unbiased manner, very definite therapeutic advances seem possible. But it must be kept in mind that non-specific therapy is still, to some extent, in an experimental stage and we are yet not fully competent to judge the ultimate range of its usefulness."

"Deterioration In The Status Of The Family Physician."

Dr. Frank Billings,* of Chicago, has written an extremely suggestive article calling attention, under the caption "The Future of Private Medical Practice," to the apparent slipping of the family doctor from his position of importance and influence to that of lesser usefulness and success. This deterioration in status is attributed to a number of causes:—some occurring as a result of conditions within the ranks of family practitioners; some arising from the influence of medical and surgical specialties; some resulting from changed conditions in urban and country life. These causes are interwoven, exerting more or less complex influences upon the status of that honorable and worthy majority of the profession in this country—family practitioners.

I. The Family Doctor Himself, it may be, is at fault in this matter. This fault, however, has come upon him because of seemingly unavoidable circumstances. The progress of surgical and medical knowledge has brought into being a wealth of new medical data and facts in the domains of diagnosis and treatment. These advances are more or less filled with elements of the ultra-scientific, involving the use of instruments and methods too complex; illy understood by him. This makes for confusion and superficial work. Some endeavor to meet the needs by improperly applying or inadequately interpreting advanced methods and so fail to succeed in their utilization; some discouraged by the use of such haphazard scientific procedure, neglect the essentials of investigation and become less skillful in the simple, direct and proven methods of diagnosis. So, family practitioners in city and country see patients, eager for the best service, slip from their hands and go to specialists where thorough and painstaking examinations may be made. Billings says: "My experience of years in a consultation and referred practice is that many practitioners neglect to make a physical examination which was formerly the practice with the majority of good men. As an instance in point, blood pressure instruments are the sole means utilized by many to obtain knowledge of cardiovascular condition."

To correct this evident fault of method, a plea is made for a return to the old order of careful study of the individual case: to the painstaking investigation of the clinical history of the patient with a record of it; to a well ordered and complete physical examination of the body of the patient: to a use of the head, hands and eyes by the physician in the careful inquiry into the ailing body, giving particular attention to the symptoms provoked in the sick body. Let the general practitioner apply a careful method to the study of his cases and make a charge for his services which will adequately remunerate him for the time and pains involved in his inquiry and the time will not be far distant when much that has been lost will be regained by the family practitioner.

II. The masterful strides of surgery during the past twenty-five years have had their effect upon the private practitioner's work. Correcting the pathology inherited from a previous generation, undertaking with boldness surgical feats previously deemed out of question, and assuming a terminology of pathologic proprietorship, as "surgical abdomen," "surgical goitre" and "surgical peptic ulcer," surgery has, in the hands of its votaries, as Billings states, set itself apart from other branches of medicine with "the assumption on the part of many of them (surgeons) to be qualified diagnosticians of all conditions which affect mankind." "This assumption has been detrimental to the interests of the general practitioner and invaded our medical schools with the result that the medical student is not properly taught." "I believe that the opinion expressed concerning the need of a readjustment between surgeons and the remainder of the medical profession will be acknowledged by broad-minded members of the profession. This readjustment must accept the principle that

*J. A. M. A., February 5, 1921.

medicine is the mother and that general surgery and all the specialties of surgery and medicine are her offspring."

The first step in this readjustment is succinctly stated by Dr. William J. Mayo, who says: "Surgery should be put back where it belongs, a means of mechanical therapy in conjunction with medicine, and should not continue in competition with the internist as it has in the past."

III. The medical college curriculum has had its effect upon this retrograde in the status of the private practitioner. This has been brought about through varied influences, but the principal one is the effort of the specialist composing the faculty to press with undue stress the fine points of his specialty while the ground work and fundamental branches of medicine, being less spectacular and less attractive to the mind of the beginner, have been pushed off the board and given subordinate places: or, at least, this has been the effect of this situation, whether or not previously designed. Medicine, internal medicine, must be returned to its proper place in the college curriculum; must be manned by the "best minds"; must be simplified and brought home to the student in all its greatness and purity as a science. The methods of diagnosis, relieved of the manifold and difficult mechanical appurtenances which laboratory experts and research workers have contrived, must be drilled into the brain of the student and the future practitioner. As Billings says: "The elaborate laboratory tests of the blood and urine, with prescribed diet and other required factors to arrive at a diagnosis of the functions of the kidney, may be replaced by perfectly simple measures of examination easily in the command of the private physician." "We must, by some means, make the private practitioner understand that a rational application of his brain, special senses, and his hands, will enable him to arrive at a diagnosis in a majority of the patients he serves."

IV. Group Medicine offers a twofold remedy for the evils existing in medical practice today. In group medicine, the private practitioner may find opportunity for qualifying himself in the pursuit of a special group of diseases and at the same time relieve himself of the tedium of unceasing work in all fields of medicine. The group members are undoubtedly benefited, if team work and cooperation prevail, and the public falling within the realm of their work is benefited by its operation. The private practitioner outside of the group may feel it to be a good thing to have within the length of his use, a group of workers whom he can use. It is a far better status than to feel that for consultation and assistance he must rely upon some one man of prominence, be he surgeon or consultant. So, a group organization that commands respect is an advantage for any community and is an advance over a "one man" consultant or surgeon.

The Doctor in Politics.

Doctors of Virginia "get into politics"! Every physician in the State should now come out and "get into politics." Get in good and strong! Every city, town, village, county and precinct where physicians reside should have the service and aid of the medical men's judgment on the representatives who are to come to Richmond next legislature to "make" laws and to form offices, and to run the government of this State for four years. Who you vote for and work for for governor is not so important because, so far as the writer feels, either one of the candidates may be elected without much difference in the course of events in the Old Dominion for the succeeding four years. But who represents your home precinct and home town in the legislature is the vital thing. He is the man whom you should know and who should know and feel the highest ideals for your home, your State, and your profession. See to it that "good" men run. If the candidates announcing themselves are not high standard, endeavor to bring to bear on the right sort of citizen sufficient influence to get him into the race for progressive, clean, efficient government. That is the way, doctor, to get into politics. Make it your business to secure high standard men or women to represent your ideals, your beliefs, your professional interests in the next legislature. Now is the time to do this.

The candidates for governor and lieutenant governor are afield. The candidates to the house of delegates and the senate are soon to follow. Get together with doctor friends and bring out strong men for these positions.

The next legislature of the State will have a great amount of business before it affecting the doctors of this and succeeding time. The settlement of the question of the location and

the type of the one medical school will doubtless be reached. This body will settle, for all time possibly, whether or not Virginia will go forward with other progressive states of the Union and have for her citizens a medical school of the first class or a second rate one.

It must be remembered, however, that no matter how "good" a representative you may have in the legislature, unless he understands what is meant by a first class medical college, he will not be in position to readily act upon the subject in an intelligent way. So make it your business to give him the benefit of your judgment and knowledge on the subject. For many months now, the VIRGINIA MEDICAL MONTHLY has been under the department "Medical Education", giving its readers a most complete survey and study, taken from the Carnegie Foundation Bulletin on the Medical Schools of the Country. From this you can get the essential points on this question. What is more important than that Virginia should have a great medical college manned by the "best minds" the country affords?

Good roads legislation will also be enacted. No class of citizens are more closely identified with this problem, both as to its crying need and as to abounding benefits. Let your representative know your views of this subject and endeavor to get him to see the needs of modern road system throughout the State.

Public school education is another subject ever close to the work and the heart of the doctor and each doctor of the State should make this a personal interest as he urges upon his representative the great needs of this phase of State progress.

There are also various public health measures and also professional interests which this legislature will be called upon to improve or reform. No man can tell when the evils of social and industrial medicine may appear in legislation in this State. There is a decided trend in this country from certain sources toward the enactment of laws looking to industrial and social medicine and no man can tell when our noble profession, which has done so much for public good under conditions not always favorable, will in this latter day be dragged down into the "government owned" state.

So, doctor, get into politics right now by seeing and educating your representatives in next legislature!

News Notes

Work Of M. C. Va. Dispensary For 1920.

The annual report of the Dispensary of the Medical College of Virginia, Richmond, for 1920, recently submitted by Dr. Howard Urbach, superintendent of the Dispensary, shows that during the year 20,435 patients visited the Dispensary, the average being 65 patients for each dispensary day. Of these, 10,431 were males and 10,004 were females. Of the 7,291 specimens examined for these patients in the Clinical Laboratory, 2,701 were Wassermanns. The largest number of patients treated in any one department was 3,532 in the department of Dermatology and Syphilis. This department also showed the greatest increase in patients due to the enforcement of the State Venereal Law, which subjects venereal patients to quarantine or confinement in jail until cured, if they stop treatment before being cured.

The first calendar year under the "fee system for patients" showed collections aggregating $5,099.83, though, if the present state of unemployment continues, it is safe to predict that receipts will not be so large another year. Total disbursements for the year were $11,387.04, or $2,424.03 more than the preceding year, which was accounted for principally by the purchase of new equipment, additional clerical help and additional clinical nurses.

The department of Social Service, under the supervision of Miss Florence Black, R. N., cared for 948 patients many of whom, in addition to being ill, were strangers in the city and penniless.

A system of "follow-up" of patients attended at the Dispensary was inaugurated last April and it is hoped, in time, that good results will be accomplished by this. Altogether, this was one of the most successful years in the history of the Dispensary.

Va. Branch American College Of Surgeons.

The first meeting of the Virginia Branch of the American College of Surgeons will be held at the Jefferson Hotel on April 14 and 15. It is hoped to have the entire membership of Virginia present at this initial meeting, which will hereafter become an annual affair, meeting in rotation at the larger cities of the State. The program will consist of clinics and exhibitions at the various hospitals in the city during the two mornings, a conference meeting of hospital superintendents, a scientific meeting for the presentation of papers and discussions, and a

large public meeting for the laity, which will take place on the night of the second day.

Dr. A. M. Willis, Richmond, is chairman of the Virginia section; Dr. Charles R. Robins, Richmond, secretary; and Dr. Southgate Leigh, Norfolk, counselor.

Teaching Teachers To Teach Health In Compliance With "West Law."

To enable teachers of the Virginia public schools to meet the requirements of the West Act, which provides for the physical inspection of pupils and the teaching of school hygiene in the public schools of the State after 1925, the State Board of Health has, in collaboration with the Department of Education, established a correspondence course in these subjects, and nearly a hundred teachers have already entered for the instruction. This course consists of twelve lessons in physical inspection of school children, control of communicable diseases, personal hygiene and first aid to the injured. It is not expected that this course will make of any teacher an expert in any one of the topics, but it will enable those who pass satisfactory examinations to secure a teacher's certificate for 1925 without having to take a course for this branch alone in one of the summer or winter schools.

Lawrence Hospital To Have New Building.

Dr. C. S. Lawrence, of Winston-Salem, N. C., has purchased a site in an ideal section of that city, upon which he will at once erect a modern hospital building to cost about $40,000. The building will be fireproof, arranged to conform to the most approved type of hospital construction, and will continue to be conducted as a general hospital. The building will be pushed rapidly and it is hoped it will be ready for occupancy about the first of August. The Lawrence Hospital was opened in September, 1919, and has been quite successful. The Lawrence Clinic, organized last June, will also be maintained with Dr. Lawrence as surgeon, and Drs. W. C. Stirling and G. C. Cook as consulting specialists.

Southern Medicine And Surgery

Is the new name adopted by the Charlotte Medical Journal. This journal was established in 1877 and was for a number of years conducted under the editorship of the late Dr. E. C. Register. The present editors are Drs. M. L. Townsend and J. C. Montgomery, of Charlotte, N. C.

Freaks Of Nature.

Tabulation of the records for the physical inspection of 2,687 school children in Essex County, Virginia, show some curious differences in the records of the white and colored children. Colored children showed a higher percentage of eye and ear defects than white children, but among the white children 65% had defective teeth in comparison with a percentage of 35% among colored children; poor nutrition was indicated in 18% of white children against 8% in colored children. Better teeth conditions among the colored children may in part explain the apparently better nutrition.

Dr. John L. Hankins,

Formerly of Fordwick, Va., but who located at Roanoke, Va., temporarily after the war, is now acting as radiographer to the hospital at National Soldiers Home, Johnson City, Tenn., which, with a 1,000-bed capacity, is for ex-service tubercular men only. Until last year, this place was a "home" for old soldiers, but is now being made into a modern sanatorium for the treatment of tuberculosis.

Dr. L. J. Marshall,

Formerly of Dayton, Va., is now located at Davis, W. Va.

Doctors At Southern Commercial Congress.

Drs. F. F. Davis, Sassafras, T. S. Hening, Jefferson, and Ashby Turner, Harrisonburg, were among those appointed by Governor Davis to represent Virginia at the annual convention of the Southern Commercial Congress, which met in Washington, D. C., March 1-3, inclusive.

Dr. J. F. Hubbard,

Who until recently was located at Alberene, Va., is now making his home in Waynesboro, Va.

Appropriation For Hospital.

The Oklahoma senate, on February 14, passed a bill providing an appropriation of $800,000 for the construction of a hospital and vocational training building for wounded and disabled former service men.

Dr. Patrick M. Carroll,

An alumnus of the Medical College of Virginia, has been a recent visitor at his home at Rio Vista, Va., Dr. Carroll is now at the New York Neurological Institute.

Births Double Deaths In England and Wales For 1920.

According to an official report of the registrar general, births in England and Wales during 1920 reached the highest figure ever recorded and deaths the lowest. The birth rate

per 1,000 of total population was 25.44 and the death rate was 12.4. Deaths of infants under one year of age were eighty per 1,000.

Dr. and Mrs. Paul W. Howle,

Richmond, were visitors in Norfolk, Va., for a few days in February.

Dr. W. B. Barham,

Big Stone Gap, Va., was a recent visitor in the neighborhood of his old home in Southampton County, Virginia.

Florida To Have Large Sanatorium.

According to a statement recently given to the press by the attorney for the men backing the project, one of the world's largest sanatoria is shorty to be erected on 4,000 acres of ground near Jacksonville, Fla., at a cost of $20,000,000.

Dr. and Mrs. Courtney Edmond,

Of Clifton Forge, Va., were among the visitors to this city in February.

University of Va. Laboratory Being Rebuilt.

The physiological laboratory of the University of Virginia, which was gutted by fire on Christmas eve, is being rebuilt in accordance with the original plan. This building is an important adjunct to the medical department. The floors will be of concrete and it is hoped to have the building ready for occupancy in April.

Dr. F. G. Scott,

Of Orange, Va., was elected assistant chief of the fire company recently organized in that place.

Dr. and Mrs. George W. Parrott,

Of Charlottesville, Va., were recent visitors at their old home, Fork Union, Va.

Dr. and Mrs. Edward McGuire

Have returned to their home in Richmond, after a visit to relatives in Berryville, Va.

Dr. Claybrook Fauntleroy,

Of Dragonville, Va., has been ill at his home with pneumonia.

Dr. H. M. Miles,

Of Norton, Va., has been in New York City for several weeks, where he has been taking post-graduate work in eye, ear, nose and throat work.

Dr. C. Bernard Pritchett,

Of Danville, Va., announces that in future his practice will be limited to dermatology, x-ray, and the diseases of the genito-urinary system.

The North Carolina Medical Society

Will hold its annual meeting at Pinehurst, April 26-28, 1920, under the presidency of Dr. Thomas E. Anderson, of Statesville. During the absence from the State of the secretary-treasurer, Dr. Benj. K. Hays, of Oxford, who is at present field examiner for the National Tuberculosis Association and stationed at Denver, Col., Dr. L. B. McBrayer, Sanatorium, is acting secretary-treasurer.

New York Medical Journal To Be a Semi-Monthly.

Beginning March 2, the New York Medical Journal will be published twice monthly in an enlarged and greatly improved form. This journal is in its seventy-eighth year of publication and has kept abreast of the times in all of these years.

Eugenics Congress.

The Second International Eugenics Congress will be held in New York City, September 22-28 of this year, at a time of exceptional interest, following so closely the World War, which has left the biologic, as well as the economic and sociologic, conditions of the world so greatly disturbed. Inquiries concerning all matters relative to the congress should be addressed to Dr. C. C. Little, secretary-general, American Museum of Natural History, 77th Street and Central Park West, New York City.

Influenza And Pneumonia Mortality Rates.

Now that the 1920 population figures for large cities have been announced, it is possible to compute more accurately death rates from influenza and pneumonia for the 1918-1919 pandemic. During the ten months, September 1918-June 1919, deaths from all forms of influenza and pneumonia numbered 281 per 100,000 in Grand Rapids, Mich., against 1,269 per 100,000 in Pittsburgh, Pa., which were the lowest and highest rates shown for any of the cities in the Weekly Health Index. In 1917, Grand Rapids had a mortality rate of 88 per 100,000 from all forms of pneumonia and Pittsburgh a corresponding rate of 364.

Mental Patients In Public Service Hospitals.

The U. S. Public Service Hospitals are now caring for 5,910 neuro-psychiatric patients and the number is steadily increasing. It is the policy of the government to care for all of its patients of this character in its own hospitals rather than in contract hospitals and, as rapidly as hospitals can be leased or built by the

government, these neuro-psychiatric patients will be transferred to them.

Invalid Kitchens.

We note from the NEW YORK MEDICAL JOURNAL that, to meet the needs of the poor of London, who are sent home from hospitals as soon as possible to make room for others, Invalid Kitchens have been established in that city, with Queen Mary as president. After the novelty of getting home wears off, these patients often lose their appetite on account of the badly cooked and carelessly served meals. The purpose of these Invalid Kitchens is to serve the guests with "one square meal" a day, which is rich in vitamines and is well cooked. It may be taken home or be eaten at the Invalid Kitchen. Nursing mothers of the poorer classes are also included.

Dr. Albert B. Siewers,

A former resident of Richmond but now connected with Johns Hopkins Hospital, Baltimore, recently visited his family in this city.

Scholarships In N. Y. Post-Graduate Medical School.

The New York Post-Graduate Medical School and Hospital announces that there will be available this year six scholarships under the term of the Oliver-Rea Endowment. The purpose of the Endowment is to award scholarships to practicing physicians of the United States to defray in full the expenses of tuition at the New York Post-Graduate Medical School.

According to the wishes of the donor, physicians in the State of Pennsylvania will receive preference in the award of these scholarships.

Applications may be sent to the President of the New York Post-Graduate Medical School and Hospital, 20th Street and Second Avenue, New York City.

Positions To Be Filled In U. S. Civil Service.

The U. S. Civil Service Commission announces open competitive examination on March 29 for associate in clinical psychiatry and psychotherapy to fill a vacancy in St. Elizabeths Hospital, Washington, at $2,500 a year and maintenance, and vacancies in positions requiring similar qualifications.

The Commission also annunces open competitive examinaton for junior pharmacologist to fill a vacancy in the Hygienic Laboratory Public Health Service, Washington, and vacancies in positions requiring similar qualifications at $1,500 to $2,000 a year.

These examinations are open to all citizens of the United States who meet the requirements, both men and women, appointing officers, however, have the legal right to specify the sex desired in requesting certification of eligibles.

Dr. Ennion G. Williams,

Richmond, was elected a member of the board of the Sons of the American Revolution at its meeting held in this city on February 22.

Dr. James C. Doughty

Onancock, Va., after attendance upon the Tri-State Medical Association in Spartanburg, S. C., visited in Georgia, Palm Beach, Fla., and Beaufort, S. C., before returning home.

West Virginia Miners To Have New Hospital.

Plans are under way for a miners' hospital to be built at Charleston, W. Va., at a cost of $500,000, work on the structure to be commenced as soon as contracts are awarded. Financing the project will be in the hands of some 20,000 union miners who, by referendum vote, have agreed to a monthly assessment of $1 each until the building is paid for, and to a smaller monthly assessment for maintenance after it is opened.

Dr. Paul V. Anderson,

Of Westbrook Sanatorium, this city, has been elected a member of the board of the Federal Trust Company of Richmond.

Hopewell To Have New Hospital.

Drs. D. L. and J. N. Elder, of Hopewell, Va., have formed a hospital company and purchased the old Albemarle Hotel, in that place, for the purpose of converting the building into a hospital.

Dr. Frank Billings,

Of Chicago, has been elected president of the next Congress of American Physicians and Surgeons, which is to hold its meeting in Washington, D. C., May 2 and 3, 1922.

Correction.

In our last issue it was incorrectly stated that Dr. E. S. Barr, recently of Cromwell Hall, Conn., was connected with the Health School of the Philadelphia Hospital. The error was possibly due to the fact that he had been connected with the Health School of Cromwell Hall. Dr. Barr is now ranking medical officer at Byberry a branch of the Philadelphia Hospital for Mental Diseases.

Base Hospital No. 45 Forms Permanent Organization.

Permanent organization of Base Hospital No. 45, familiarly known in this section as the

"McGuire unit", was perfected on the evening of February 28, at a meeting held in Richmond. Dr. Stuart McGuire was chosen honorary president for life. Other Richmond doctors elected officers are Dr. Joseph F. Geisinger, vice-president, and Drs. Garnett Nelson and James H. Smith as members of the executive committee.

Dr. Jerome Braun,

Until recently of New Market, Va., has accepted a commission as lieutenant in the medical corps of the U. S. Navy, and is at present stationed in Norfolk, Va.

Dr. Hamilton J. Slusher,

After sometime spent at New Market, Maryland, has returned to his former home at Boissevain, Va.

Annex To Norfolk Protestant Hospital.

An annex to the Norfolk, Va., Protestant Hospital, known as the Philip Levy Memorial annex, was recently opened. It was the gift of the widow of the late Philip Levy and was erected at an approximate cost of $96,000. It has accommodations for twenty-eight maternity patients, five of which are free beds.

Texas To Have T. B. Hospital For Former Service Men.

Governor Neff of Texas has approved a bill appropriating $1,500.00 for the erection of a tubercular hospital for ex-service men. It was passed, practically without opposition, by both branches of the Texas legislature.

Married.

Dr. David Lane Elder, Hopewell, Va., and Miss Elizabeth Garrett Shumate, Bassetts, Va., February 16. Their honeymoon was spent in Florida and Cuba.

Dr. Rawley Harrison Fuller and Miss Corrie Mae Allen, both of Clover, Va., February 1.

Dr. M. B. Coffman and Miss Mae Rolin Davie, both of this city, February 16.

Dr. E. C. Levy,

Director of Public Welfare of Richmond, received a scalp wound on February 19, when knocked down by an automobile. After several days, however, he was again at his desk.

The Richmond Health Bureau

Has established a Division on Tuberculosis, a plan which it has had under consideration for some time. Dr. E. C. Levy, director of Public Welfare, has appointed Dr. Dean B. Cole chief of this Division under the direction of Dr. C. C. Hudson, health officer of Richmond.

Dr. Cole was formerly connected with the Virginia Tuberculosis Association but has been doing special work at Bellevue Hospital, New York City, since July last. He will have offices at 1108 Capitol Street, this city, and will be in charge of the local tuberculosis clinics, will be chief visiting physician to Pine Camp (Richmond's tuberculosis sanatorium), and will act as consultant, free of charge, to any physician of this city, to assist in the early diagnosis of tubercular cases.

N. C. State Board Of Medical Examiners.

Dr. Lester A. Crowell, Lincolnton, and Dr. Kemp P. B. Bonner, Morehead City, are president and secretary, respectively, of the North Carolina State Board of Medical Examiners, as recently appointed.

Dr. William H. Goodwin,

University, Va., has been elected a member of the board of governors of the Colonnade Club of the University of Virginia.

Government Hospital To Be Erected At Norfolk, Va.

The U. S. Treasury Department closed a deal on February 18 for the purchase of a thirteen acre site at the corner of Jamestown Boulevard and Tanner's Creek, Norfolk, Va., on which to erect a public health service hospital at a cost of $900,000 for the grounds and building. It is understood that the government will proceed with construction of the hospital as soon as title can be obtained to the property.

Dr. William J. Mayo,

Rochester, Minn., has tendered his resignation as vice-president of the board of regents of the University of Minnesota.

The American Public Health Association

Will hold its semi-centennial meeting in New York City, November 14-18, 1921. It is of interest to note that the organization meeting of this Association was held in New York City in April 1872. Its first president, Dr. Stephen Smith, of New York, is still living and is 99 years of age.

Dr. Victor C. Vaughan

Has tendered his resignation as dean of the University of Michigan, School of Medicine, to be effective at the end of the present term. He has been connected with the medical faculty of this school for forty-five years and has been dean of the medical school for thirty years.

Sterilization Law In Operation In Oregon.

The State Board of Health of Oregon announces that almost 100 persons have been

sexually sterilized since the passage of the Sterilization Act in 1919. In each case, the operation was performed by order of the State Board of Eugenics, especially appointed to have supervision over this law.

Dr. F. B. Huffman,

Recently of Newport, Va., is now located at Blacksburg, Va.

Dr. F. K. T. Warrick

Has returned to his home in this city, after having been called to Glassboro, N. J., on account of the death of his mother.

Rear Admiral Cary T. Grayson,

Who was appointed to act as Ex-President Wilson's personal physician during his administration, has been assigned as head of the Naval Dispensary in Washington. His work in this line will not, however, prevent his continuing as Mr. Wilson's physician.

Richmond A Healthy City.

The annual report of the Richmond Health Department, prepared by Dr. C. C. Hudson, chief health officer of the city and handed Dr. E. C. Levy, director of public welfare, shows that the 1920 death rate was the second lowest in the history of the city being 16.46 per 1,000 population. The birth rate was the highest recorded in recent years, being 25.31 per 1,000. Altogether, the report was most creditable, but never so good that there is not hope of making it better.

Wanted—

Doctor with general experience to take contract with small plant in southwest Virginia. Must be well recommended. For information, apply to "Southwest Virginia," care *Virginia Medical Monthly*.—(Adv.)

Wanted—

Assistant Physicians (mental disease) and Assistant Physicians (tuberculosis) in the Maryland State Hospitals. Apply to State Employment Commission, 22 Light Street, Baltimore, for full information and application blanks.—(Adv.)

Wanted—

A man who is well up on internal medicine and able to do the diagnostic laboratory work usually required in a 30-bed hospital, or he must know at least enough about laboratory work to be able to do it after a few months brushing up. Would be wanted to assist with surgery, to do a certain amount of office work and general practice in a good sized town with good roads and excellent surrounding country. I am not looking for an interne, but want a man capable of stepping right into active practice; in other words, a man with experience and other qualifications to fit him for a partner. I have nothing to sell, but a splendid proposition to offer the right man. Address "D," care this journal.—(Adv.)

Obituary Record

Dr. Robert Alexander Black,

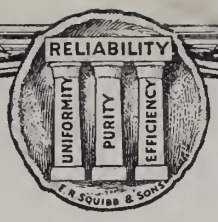
A prominent practitioner at Hot Springs, Va., for fifteen years, died suddenly in his office on February 14, of heart disease. He had only a few days previously returned from Florida where he had been enjoying a vacation. Dr. Black was born in Brooklyn, N. Y., sixty years ago, and formerly practiced in that city and was at one time president of its Board of Health. He joined the Medical Society of Virginia shortly after locating in Virginia and was a member of the American Roentgenological Society and the Bath County Medical Society. He made a specialty of medical electricity. He is survived by his widow and a son who is in business in Cuba. Dr. Black graduated in 1883 from the College of Physicians and Surgeons of New York, now Columbia University.

Dr. B. Dorsey Downey,

A well known doctor of Portsmouth, Va., died at his home in that city, December 23, 1920, at the age of sixty years. He had been ill for several months. Dr. Downey was a native of Liberty Md., and a graduate in medicine from the University of Maryland, Baltimore, in 1883. He came to Virginia immediately after his graduation and practiced in this state until a few months prior to his death. He was a member of the Medical Society of Virginia.

Dr. Deucalion Gregory

Died at his home "Woodbury" in King William County, Virginia, March 1, age seventy-four years. At the age of sixteen, Dr. Gregory enlisted in the army of Northern Virginia and served until captured. After the war, he studied medicine, graduating from the Medical College of Virginia in 1870. He had always made his home in King William County and was exceedingly popular in that section of the State. His widow and a large family connection survive him.



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Anti-Pneumococcic Serum is of great value. It should be used early in large quantities and full doses repeated every six hours until the crisis is passed; also **Anti-Streptococcic Serum** is important for pneumonia in addition to anti-pneumococcic serum. It is best not to use the two mixed, but to administer each separately as the symptoms and bacteriological findings demand.

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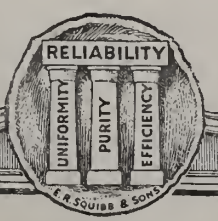

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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

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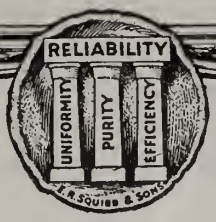

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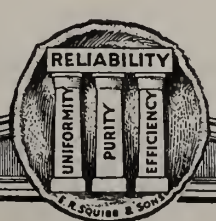

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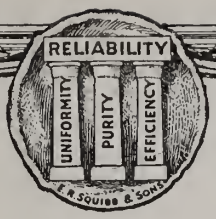

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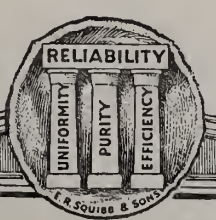

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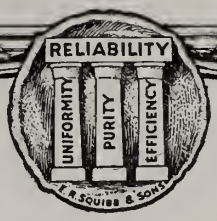

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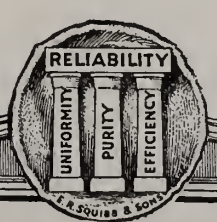

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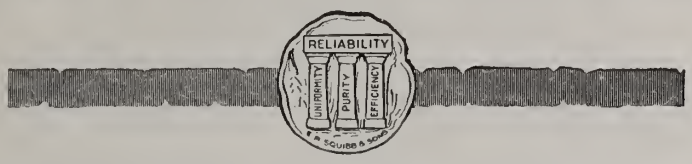

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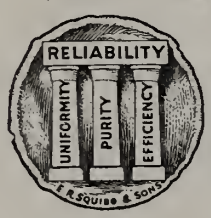

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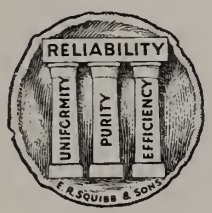

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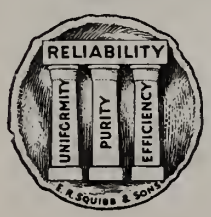

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